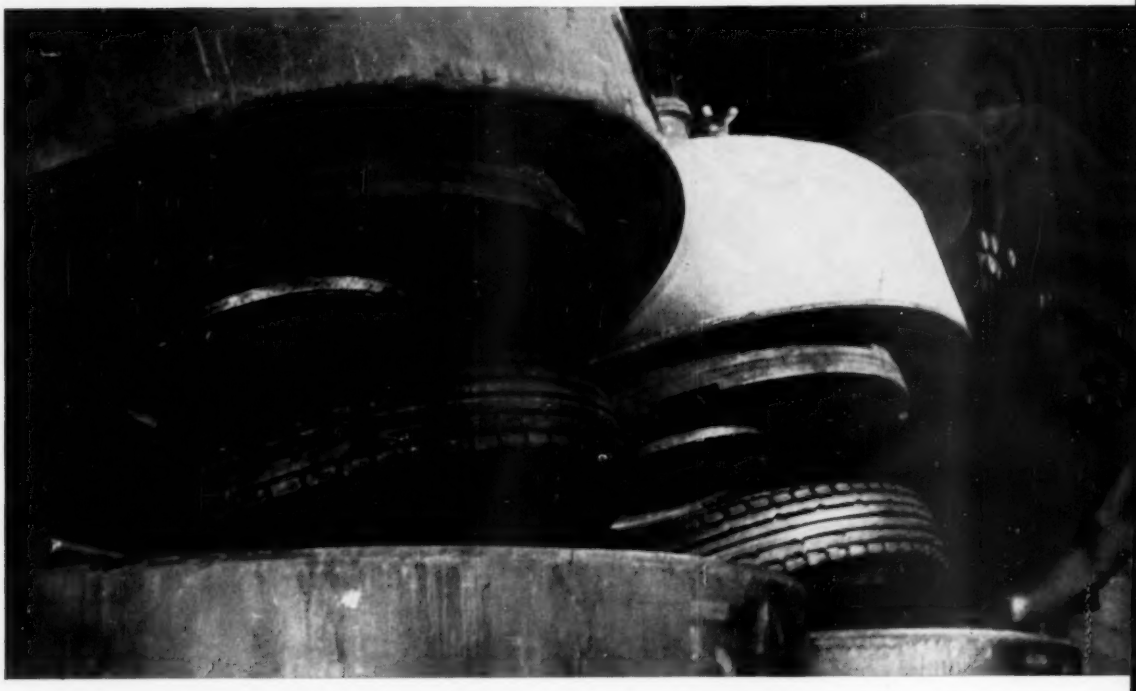
Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • NOVEMBER, 1959 • 50¢
Published By Alfred M. Best Company, Inc.

THE U.S. TREASURY SALUTES THE RUBBER INDUSTRY



and its people who buy Savings Bonds and strengthen America's Peace Power

Americans who work in the rubber industry are proud of the rapid strides being made in their field, both in volume and in variety. Automotive rubber products and molded and mechanical rubber goods show constant gains in quality and quantity. Further, the rubber industry has done pioneer work in such novel applications as moving sidewalks and collapsible tanks for liquid storage.

People who work in this 7 billion dollar industry are proud of another thing, too: the help so many thousands of them are giving to America's Peace Power through the purchase of U. S. Savings Bonds. By regular purchases of Shares in America, these patriotic and forward looking people are reinforcing their own security after retirement. By this means they establish reserves for emergencies as well as for long range family projects, like education and home building.

If your company has not, thus far, set up a Payroll Savings Plan, you can start immediately. Just telephone your State Savings Bonds Director and accept the help he is anxious to give you. Or write to Savings Bonds Division, U. S. Treasury Department, Washington, D. C.

Harold E. Kalb is shown here at his work in one of the great manufacturing plants of the rubber industry. Like many thousands of his fellow craftsmen, Mr. Kalb is using his company Payroll Savings Plan to contribute regularly to the Peace Power of his country.

SAFETY MAINTENANCE

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR AB

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

PLANT MAINTENANCE

Floor and Stair Covering 498
American Mat Corp., offers a brochure on floor mats, tile, and stair treads produced from a revolutionary new compound. Details on this special composition and its features, such as durability, resiliency and slip-resistance are included. Other products made from this same compound are also shown.

Sweeping and Scrubbing 499
Flour City Brush Co. Booklet describing floor brushes and mops is aid in selecting the right brush or mop to give the best results on different floors. Various types are fully illustrated, with their particular suitability for special operations clearly shown.

Slipperiness Test 200
Frazier Engineering Co. "Safe-Test" Slipmeter provides quick and accurate measurement of floor conditions, making it possible to test slipperiness of surfaces, maintain accurate records, improve housekeeping programs. Bulletin describes a variety of uses.

Maintenance Manual 201
Johnson's Wax has completed a thorough reference guide for building maintenance. The illustrated manual is divided into 12 sections, covering such maintenance subjects as day-to-day maintenance, special finishes, care of equipment and safety suggestions.

Ultrasonic Cleaning 202
Branson Ultrasonic Corp. Bulletin discusses cleaning methods for contaminants found on laboratory equipment. Cleaning results with and without ultrasonic energy are compared and illustrated.

Heavy-Duty Floor Finish 203
Multi-Clean Products, Inc. New heavy-duty floor finish, "Tuff-Dri," is described in the new company brochure. Literature covers its application, drying time, maintenance. Specifications on resistance and durability are also included.

Constructon Handbook 204
L. Sonneborn Sons, Inc. 128-page handbook contains engineering data and specifications to help solve many problems of waterproofing, dampproofing, painting, caulking, roofing and flooring. Included are charts, estimating guides, weights and measures. The booklet is indexed by products and uses for quick reference.

Electrical, Lubricating Devices .. 205
Trico Fuse Mfg. Co. has published a new condensed catalog with descriptive data covering types and usage of electrical and lubricating devices. Newly developed products are featured to assist industry in cutting costs of maintenance and increasing production. All items are listed with capacities and sizes.

Spray-On Coating 206
H. K. Porter Co., Inc. Folder covers vinyl spray to seal out rust and corrosion. Major features and benefits of coating for metal surfaces are covered, as well as the advantages of the new container.

FIRE PROTECTION

New Extinguishing System 207
Cardox Div., Chematron Corp. High pressure carbon dioxide fire extinguishers for hard-to-protect areas are described in a new bulletin. Photographs and diagrams illustrate the systems that can be installed on upper floors where larger low-pressure tanks cannot be installed, as well as other possibly hazardous areas.

Flammable Liquid Guide 208
Protectoseal Co. Guide covers safe handling and application of flammable liquids in production and maintenance operations of industrial and chemical plants. Problems are outlined as well as methods and equipment required for safe control and use. Book is divided into six general plant operating sections for quick, convenient reference.

PERSONAL PROTECTION

Glove Protection 209
American Optical Co. Brochure describes special series of fabric coated gloves as well as the advantages of that type of glove. Included in the illustrated literature is a thorough chart on chemical resistant. A complete list of industries and uses is provided for each series covered.

Respirators 210
Pulmosan Safety Equipment Corp. Brochure illustrates and describes a new series for dust and chromic acid mists, low concentrations of gases and vapors, and combinations of dusts and gases or vapors. Model descriptions and order numbers are included.

New Safety Mitt 211
Keller Glove Mfg. Co. Literature describes new reversible inter-changeable safety mitt which has longer life due to its special fabric and two individual wearing surfaces. Also, new mitt permits greater use of the thumb.

(Continued on the next page)

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NOVEMBER, 1959 **Please send me the following free data**

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Free Bulletins (Cont'd)

Hood, Goggle Attachments 212
E. D. Bullard Co. Brochure describes and illustrates new lightweight attachments for welding hoods and goggles. Sizes and fittings are given, as well as instructions for bolting or lacing protective equipment to the safety cap.

INDUSTRIAL HYGIENE

Group Showers 213
Bradley Washfountain Co. New brochure covers multi-person type shower baths. All details are covered, including installation and floor plan suggestions. Ideas for circular, semi-circular and corner types are included as well as information on controls and partitions.

Hospital Catalog 214
Ferno Mfg. Co. has announced their new catalog of emergency and hospital equipment and accessories. The new book describes and illustrates the company's complete line with special emphasis on the one-man roll-in cots. Included are descriptions, prices, specifications and sizes of each product.

Air Sampler 215
Staplex, Inc., Air Sampler Div. Brochure describes the new Hi Volume Air Sampler as an effective instrument for detecting and measuring air pollutant particulate matter which may be a hazard to personnel. The unit is readily portable and can be used indoors and outdoors.

Dust Collectors 216
Torit Mfg. Co. Catalog covers dust collecting equipment for any need, with emphasis on filter and centrifugal separator types. Illustrated pages, with complete sizes and specifications, are bound in notebook form for easy reference. A special selection on dust collectors for the school shop is included.

Foot Protection 217
Onox, Inc. Bulletin describes company's footmat and new footsprayer with emphasis on savings with safety. Literature discusses facts on athlete's foot, the need for protection, as well as the purpose of the Onox treatment for prevention of infection. Pictures illustrate methods of applying the solution. Typical product users are included in the report.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
117	Safety Shoes
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	FIRST AID AND HYGIENE
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Wash-up Facilities
124	Salt Tablets
125	Resuscitator Tubes
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
134	Hearing Testers
135	Hearing Protectors
136	Noise Analysis Equipment
	FIRE PROTECTION
140	Fire Extinguishers
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
147	Incinerators
148	Watchmen's Control Systems
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
155	Powered Megaphones
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Materials
165	Paints
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
193	Employee Safety Guide
195	Changeable Letter Signs

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 118, Number 5 **November, 1959**

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Cover picture by courtesy of Blaw-Knox Co.: Steel pourer at Jones & Laughlin's Basic Oxygen Furnace shop at Aliquippa, Pa., controls ladle's stopper rod at safe distance by push-button pendant. Note personal protective equipment.

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it's SAFE to say

● BRUSH-OFF FROM THE THRONE

To the Big Boss in any industrial plant, the responsibility for safety is but one of many and most of the time, that responsibility is under-played. If this were not true, we would not find the growing number of safety supervisors on the payroll of more and more plants scattered throughout the country.

The great number of safety delegates to the recent, and highly successful National Safety Congress & Exposition offered convincing proof that medium-size and even small plants are adding safety supervisors to their staff to relieve the Big Boss of many facets of responsibility for accident prevention. But what is wrong when he refuses to give adequate time, attention and money to preventing the loss toll taken by accidents?

What's wrong when the safety supervisor receives the brush-off from the Throne? Almost invariably, it is because the facts of accident prevention were not properly presented. Necessarily, the Chief must channel his thought processes to production, sales, costs, public and labor relations, profit margins, inventories, replacements and "cushions" for expansion. Unfortunately, too many men fail to relate industrial accidents to every one of those executive responsibilities. It then becomes very simple to rationalize that we are employed by bosses utterly indifferent to accident prevention and safety. Some are, BUT - - - - -

Nine times out of ten it is not necessary to "sell" the objective of safety to the head of the company. It is the method of selling that frequently leaves much to be desired and the truly dedicated safety leader does not hestitate to prepare himself for any possible executive "indifference." In other words, the dedication must be there as a starter and obviously, it is in most cases since no one in his right mind would choose a career in safety for its financial rewards.

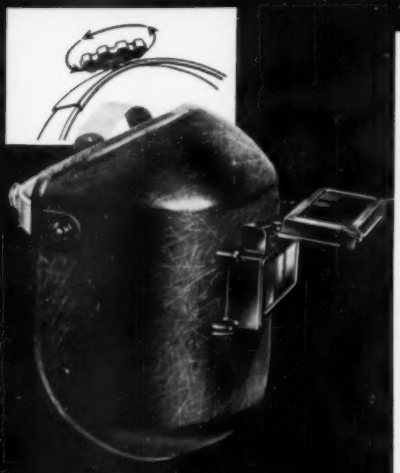
Starting with the premise of a dedication to safety, the safety supervisor must tackle the hard job first . . . showing and proving that the time to spend money for accident prevention is **before** a casualty occurs.

Any safety measure intended to protect life, limb and property should be previewed, reviewed and presented—if necessary, over and over again—until the Throne fully understands that a fight for safety is a fight for company as well as employee welfare.

Gone are the days when we could hope to make any lasting impression on the busy and realistic executive mind by drawing pictures of the crepe-draped empty chair; the sorrowing widow and the slightly under-nourished, bare-footed orphans. Cold facts come before the warm. And the cold fact is that accidents cost money and sabotage production, sales, public and labor relations, profits and rainy-day cushions. The drama can come later!

Certainly, we know bosses who would hit the roof, provided they did not suffer a coronary thrombosis, if the safety supervisor submitted an appropriation request designed to make over the entire plant. Fortunately, the truly progressive safety supervisor is a keen student of psychology and he recognizes the value of achieving small gains step by step rather than trying to blow the budget into smithereens with a single Big Project bomb. The take it easy approach not only can prove the effectiveness of a safety program but is a continuing demonstration to the staff that every step is in the direction of employee protection.

In most cases, if the Big Boss is wrong about safety, it is because the safety supervisor has been wrong in his presentation. Show these tired, editorial eyes a boss who is not profit-conscious and they will look upon a miracle!



This Popular AO Fiberglas Welding Helmet Has Easy "Radio Dial" Adjustment

Yes, the wearer can quickly "tune in" positively to proper head size by self-locking rear adjustment when he combines protection and convenience with the "9706." Helmet has dark gray exterior, curved chin, cool, lightweight aluminum glass holder and lift front. Shell is non-warping, strong, flame-resistant and specially designed for good ventilation.

QUICK FACTS:
All plastic headgear. Adjustable fiber chin rest. Adjustment permits easy alignment for best working vision. Moisture-proof, helmet can be used for outdoor welding.

Now... Vision and Ventilation Combined in One Face Shield... the "KOOL-VENT!"

Clear acetate* in the eye area, 24 mesh screen elsewhere — that's American Opical's new Kool-Vent Face shield. Workers get *both* unobstructed vision and greater comfort because of the ventilation. Back headband is fiber, adjustable. Easy nut adjustment for head size. Deep spark deflector. The Kool-Vent is particularly recommended for hot operations.

*Also available with green or aluminized windows

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THE FUTURE SHOWS

Columbia, S. C. *November 4–5*

Twenty-second Annual South Carolina Accident Prevention Conference. B. Fred Derrick, Jr., Secretary, % S. C. Industrial Commission, P. O. Box 539, Columbia, S. C.

Philadelphia, Pa. *January 25–28*

Eleventh Plant Maintenance & Engineering Show and Conference (Convention Hall). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

San Francisco, Calif. *February 16–17*

Tenth Annual California Statewide meeting of the Governor's Industrial Safety Conference (Fairmont Hotel). Michael Flagg, Coordinator, % Dept. of Industrial Relations, 965 Mission St. (Room 400), San Francisco, Calif.

Fort Wayne, Ind. *March 15–16*

1960 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Safety Council Manager, Chamber of Commerce Building, Fort Wayne, Ind.

Boston, Mass. *March 21–22*

Thirty-ninth Annual Massachusetts Safety Conference and Exhibit (Hotel Statler). Bert Harmon, Manager, Massachusetts Safety Council, 54 Devonshire St., Boston 9, Mass.

Los Angeles, Calif. *April 11–13*

Seventh Annual Western Safety Congress and Exhibit (Ambassador Hotel). Greater Los Angeles Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Winston-Salem, N. C. *May 4–6*

Thirtieth Annual North Carolina Statewide Industrial Safety Conference (Robert E. Lee Hotel). H. S. Baucom, Director of Safety, North Carolina Industrial Commission, Raleigh, N. C.

Richmond, Va. *May 5–7*

Virginia Safety Association Conference (John Marshall Hotel). Va. Safety Association, 2501 Monument Ave., Richmond 20, Va.

SIGHT SAVING IN THE SMALL PLANT

by Dr. **WILLIAM L. ROBERTS**
President
New York State Optometric Association
Binghamton, N. Y.

Begin with a healthy pair of eyes.

Check to see that they work together as a team, perceive in three dimensions, comprehend a full range of colors and function without undue strain.

Provide optical assistance if necessary so that sharp, clear pictures are relayed to the brain.

Enhance existing visual skills and provide ocular comfort by adapting vision to the specific seeing requirements of the job.

Guard eyesight from accidental injury, from unavoidable glare, from the subtle effects of radiant energy.

Control the quality, quantity and direction of light.

Apply paint and color for better utilization of light, to highlight hazards, to keep vision alert.

This is the modern concept of Vision Conservation in Industry.

But it wasn't always so. Prior to World War II "vision conservation" in most plants, meant just two things: protection of the eye itself from external hazards; first aid for injuries that occurred in spite of the protection program. The seeing ability that an individual brought to his job was just assumed to be O.K. With but few exceptions, pre-employment eye testing consisted of a count—if the applicant had two, he was hired! Once employed, it was taken for granted that his ability to see clearly and accurately would continue until retirement.

The awakening occurred when inexperienced, neglected and over-age eyes were called upon to guide machines, read dials and control equipment that had been designed for the young eyes that had now gone off to war. The results were immediate and spectacular—**high frequency of hand and finger injuries, accidents due to fatigue which in turn was traceable to poor posture induced by eyestrain, spoiled work, complaints about the lighting, costly errors, a high incidence of headaches.** It quickly became apparent that something had to be done to detect the visual shortcomings of employees and arrangements made to rehabilitate those found wanting.

Covered by Program?

According to the latest estimates, some fifteen million employed persons are covered by Industrial Vision programs that include frequent in-plant vision screening, clear-cut arrangements for eye examinations and the furnishing of optical equipment specifically designed to improve vision on the job while protecting eyes from injury. With but few exceptions, however, these fifteen million people are employed in **large** plants—plants that have the "where-with-all" to make the substantial investment necessary to cover the cost of testing devices, to

employ professional personnel on a full-time or a part-time basis, to establish large equipment inventories and to engage staff personnel to administer the program. The average small plant has been left behind—has had neither the incentive nor the pressures which have motivated the big fellows' entrance into this field of activity.

There are a number of reasons for this:

1. Eye injuries, in small plants, occur relatively infrequently—not often enough to cause alarm or provide the impetus which prompts so many large concerns to engage in an all-out protection program. **Yet in the aggregate our national total of 300 thousand serious eye injuries a year is primarily the accumulated total of these infrequent occurrences in small places of employment.**

2. Safety consultants and advisors, when working with small plants, are usually so occupied with basic safety fundamentals that they do not spend much time on specialized activities.

3. Field representatives of optical companies have made substantial contributions to the vision conservation movement but many of them do not routinely call on small plants, nor are the programs they have to offer particularly keyed to small plant operation.

4. The relatively few professional men specializing in occupational vision are fully occupied. Other vision specialists who might desire to enter this field have been held back by ethical considerations from making known their desires to serve Industry.

5. Finally, the owners and managers of these small concerns, if they have given the subject any thought at all, have considered vision conservation a "frill" which only large organizations can afford.

But a vision conservation program for any plant, regardless of size, is not an expense but an investment. It is an investment that will yield an immediate return and then continue to pay dividends from year to year. The immediate return comes from the practical elimination of eye injuries, marked improvement in the general accident experiences, reduction of mistakes and spoiled work. The long term gains include greater job satisfaction, lower turnover, reduced training time, better placement and improved employee morale.

So Near and Yet So Far

Early last year, the New York State Optometric Association began a study to determine how its 700 members spread across the state could assist various organizations—particularly small employers—in achieving results similar to those attained by the large companies. Here are some of the things our studies revealed:

1. Optometry is essentially a "neighborhood" profession. You will find optometrists in every community, either "right next door" or "just around the corner." But in the usual course of events optometric services are rendered to people who come to these vision specialists as individual patients rather than as employees of industry or members of established occupational groups.

2. Also "right around the corner" in these same communties are employers faced with safety, cost and production problems—problems which to some extent at least are traceable to eyes and eyesight.

3. Put the two together and we have—side by side—plants with problems and optometrists with answers. Yet neither is fully aware of the other's existence or of the benefits that might accrue if they got together. We asked ourselves "under what kind of an arrangement could we get together," "how do we let Management know of our availability," "what needs to be done—how do we do it?"

4. We decided that whatever we came up with must be simple in concept, easy to arrange, completely practical and realistic as to cost.

5. To be fully effective, every member of our organization who wishes to participate must work to a pre-determined set of standards and go along with a uniform fee schedule. Management wants to know in advance what it is going to get and how much it is going to cost.

6. We came to the conclusion that our Association needed a coordinating agency—an organization that would get us all thinking along the same lines and that would handle the business end of working with industry—the business end to include the promoting, the negotiating, the arranging, and the handling of fiscal matters.

The result of our deliberations has been the formation of New York State Vision Services, Inc., a voluntary, non-profit organization incorporated under the laws of New York State. It sets up the administrative machinery through which industrial concerns and other organizations may contract for the services of our panel members under a system of pre-determined costs and established standards of service.

Special Training

Our state-wide organization is broken up into area panels with each group functioning as a team. The members have been attending seminars and training courses to learn more about industry's jobs and processes, eye protection standards, screening procedures, responsibilities under Workmen's Compensation laws, safety codes and insurance regulations. In other words, Step One has been getting our own members prepared to work with industry. This advance preparation has also included conferences with the optical laboratories on quality and performance standards, agreement on tolerances, adherence to safety specifications. Special forms have been developed and printed for use in the plant in recording job visual demands and

other essential information aimed to facilitate the flow of information from the plant to the doctors who will be examining, prescribing and furnishing the required equipment for employees.

The Service Program

Although our N.Y.S.V.S. Program will always remain flexible enough to meet each individual small plant's problems, the essential features include the following: The service is divided into two parts, the first taking place at the plant and the second in the panel member's office. At the plant, we carry on the following activities:

1. Make a preliminary vision check—a screening test—for each employee. This is accomplished with one of the time-tested portable instruments. With it the doctor can quickly and accurately measure important items of visual performance in from three to five minutes. The test is non-diagnostic—that is, no determinations are made as to why an individual's eyes perform in a certain way, nor is there any attempt made to prescribe corrective measures at this time.

2. Skills tested include visual acuity (the keenness or sharpness of vision) of each eye separately, then both eyes together, with the test being repeated twice—once at a distance equivalent to twenty feet and the second time at reading or working distance. Vertical and lateral phoria tests are made to determine the posture of the eyes when normal stimuli to fixation are removed. Poor scores may indicate susceptibility to eye strain and lack of good binocular coordination. The next test is for stereopsis or the ability to see accurately in three dimensions. Stereopsis is very important in avoiding injury and in the safe movement of materials, men and equipment about the shop. The final test is for color discrimination to determine the presence of total or partial color blindness. The ability to make fine discriminations between colors is important on many jobs.

3. Following the visual skills test, the optometrist makes a check of the external and internal parts of the eye including the media, fundus, crystalline lens, blood vessels, optic disc and pupil reflex to disclose any ocular pathology, anomalies or injuries that may be present. Following this a few simple questions are asked to obtain information from the employee about glasses, if he wears them, what difficulty if any he may be having with his vision and if so the nature of the difficulty. This tells us what we need to know about the eyesight conditions and the visual skills of the individual employee. Tests take about ten minutes per person and can be conducted in a small room near the work place, the only requirement being a comparative degree of privacy.

"IT SEEMS TO FIT SNUG ENOUGH."

4. The next step is to find out "what has to be seen." Using a special form, the optometrist studies and records the degree of visual discrimination required on the various jobs in the plant and secures information about environmental conditions that may affect seeing efficiency. He checks and records information on seeing distances, the level of work, whether the employee sits, stands, climbs, moves about and whether his equipment is mobile or stationary. Information is obtained about the illumination, unavoidable glare sources or other obstructions to clear vision. If there are potential eye hazards, they are classified as to type, severity and the kind of protection that will need to be worn.

5. The test scores made by individual employees are now interpreted and appropriate action taken. All of those who have a high level of visual skills and no conditions that need further investigation are fitted with the type of plano (non-focus) eye protection device specified for their department or job. Those who have made low scores or who have conditions that need further study are supplied with a list of Panel Members and urged to obtain the needed office examination as soon as possible.

The second phase of the program takes place in the optometrist's office:

1. All Panel Members will have been provided with job information so that when the examination is completed, the recommended remedial measures—in most instances prescription lenses—can be especially prescribed for the work situation. This is adapting vision to the job. The prescription will be furnished in impact resisting (and or radiant energy absorbing) glass and mounted in an approved safety frame.

2. The Panel Member orders the protective-corrective device from an optical laboratory, supplying the necessary facial measurements, lens formula and protection specifications. Upon receipt of the finished device, he verifies the accuracy of the prescription and notifies the employee to report for fitting. The special safety eye-wear is then adjusted for comfort, for accurate seeing and the utmost in protection. The employee is asked to return two to four weeks later for re-evaluation and progress report. This is to make certain that the remedial measures are working out as intended and that the lenses are properly positioned before the eyes. In addition, the plan provides for subsequent servicing (fitting, re-aligning, readjusting, tightening, etc.) for a period of two years.

In a plant of 100 employees the initial in-plant activities are accom-

(Continued on page 14)

by **JOHN B. CALKIN**, President
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resurfacing for industria

The accompanying discussion of floor resurfacing compounds is intended to help plant operators in the selection of suitable materials and methods. Needs are various. The choice usually depends on the type of traffic to be provided for, the kind and condition of the existing floor, and the prospective exposures; for example, to water, oil, solvents, and chemicals. Since one of the most common occasions for resurfacing is the broken, "dusting," or slippery condition of an old concrete floor, one of the possible correctives to be considered is removal of the old floor and replacement with new concrete.

Also to be covered in Part 1 of this article are the oxychloride cements. Part 2, which will be published in the December issue, will include asphalt mastics, asphalt emulsion with aggregate, asphalt-modified hydraulic mortar, latex-modified hydraulic mortar, and resinous compounds, as well as information on patching and cleaning.

If **new concrete** is under consideration reference should be made to Federal, American Society for Testing Materials, and other standard concrete specifications. Give special attention to the two provisions most often slighted: the water content of the mix, and the finish.

New Concrete

For maximum density and strength it is essential to use a relatively dry mix, as one expert put it, "A mix no wetter than garden soil in condition for plowing." It should be consolidated by vigorous tamping. The correct mix looks wet **only** when tamped. In this connection, mechanical equipment such as vibrotampers are desirable. Lacking experienced help or equipment it might be well to settle for a slightly thinner and more workable mix.

Steel-troweled surfaces are slippery when wet; wood floats produce a non-skid finish. A factory floor so laid and finished was recently examined after 20 years of daily exposure to steel-tire traffic. The only sign of wear was a smoothing of the finish. There were no ruts or loose sand. You should note, of course, that the labor cost of installing such a floor is slightly over the usual figure, and that continuous supervision of the work is necessary. But the expense and trouble are often amply repaid.

Oxychloride Cements

In its broadest usage, the term "oxychloride cement" describes a variety of mixtures containing a metal oxide (zinc, magnesium, copper, and the like) plus the chloride of the same or a different metal.

compounds floors: part 1

What types of resurfacing materials are available? Where and how can they be used?

In practice, most structural oxychloride cements are based on magnesium oxide and magnesium chloride. Dry magnesia and magnesium chloride solutions are separately packaged by manufacturers. These ingredients are mixed shortly before application with or without sand, marble dust, terrazzo chips, or some special purpose aggregate.

• **Charateristics.** Typically they have a higher cost and poorer resistance to weathering than Portland cement compounds. Similarly, the oxychloride cements' low resistance to long-continued water exposure and their total lack of acid resistance disqualify them for most chemical plant work. (Good water resistance, however, is claimed for one copper-bearing product classed as an oxychloride cement.) Compositions containing hard aggregate can be made up in white or in colors for use in reception rooms and other areas where decorative effects and easy cleaning are valued. When so used they are commonly laid as a finish coat over concrete.

Mixed with a suitably graded, compressible aggregate such as wood flour, cork granules or powdered bark, oxychloride cements form a slightly resilient floor surface which will stand up to iron tire traffic if well bonded to the under surface. Such compositions are suitable for resurfacing factory floors in any dry location. The recently-developed nailable flooring for boxcars is a composition of this kind. The nails used for cleating and bracing cargo can be driven and withdrawn with little damage, and maintenance consists only of occasional patching with the same composition.

Unlike most flooring materials, oxychloride cements are slightly conductive—enough so to form a satisfactory anti-static floor when mixed with copper powder. Other conductive aggregates may be added. By excluding sand and other hard aggregates from the mix, the hazard of sparks caused by dropping steel parts, tools and the like, may also be minimized.

• **Application.** To prepare industrial concrete floors for resurfacing, patch all breaks and weak areas. Then follow through by a thorough cleaning to remove dust, oil, grease, and paint. Adhesion of oxychlorides to clean, unpainted, dust-free concrete is usually good, but many vendors advise using a resinous or latex primer coating if heavy traffic is to be carried. Wood floors should be covered with a perforated metal matting after renailing as needed to prevent movement under heavy loads.

A minimum thickness of ¾ of an inch is usually recommended for industrial floors carrying mobile

(Continued on page 19)

HOW TO PREVENT MAINTENANCE

by **W. C. COOLEY**, Assistant Manager
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If you will glance at the accompanying material on **The Hazards of Maintenance,** you will see that almost any maintenance job is loaded, really loaded with hazards. Let's take a quick look at the costs of accidents. Each year in California, for example, the insurance premium for compensation insurance is based on a complex equation developed from the cost of accidents in previous years and the degree of safety provided on machinery and equipment to protect employees from accidents. The fewer protective guards on hazardous machinery, the more accidents, and **both** factors influence the insurance premium rate. In large companies, a rate rise of a few cents means thousands of dollars of additional premium. Since most companies of 50 or more employees are experience rated for accidents, **they pay for all accidents eventually in increased premiums** (usually within four years).

And what about the intangible costs? What about the loss of productivity of the injured man? Also, if the lack of a guard or other safety device was a contributing factor to the accident, how interested will the injured employee be in doing this type of job again? How about other employees? Experience has shown that in an unsafe shop morale is poor and employee turnover is high.

What can we do to make maintenance operations safer and to have a safer maintenance shop? Most safety devices cost little money and are easily installed. All safety programs cost very little other than time, and this time is well worth while.

What safety devices are available to give **physical safety** to a maintenance shop? In Table 1 is a list of safety devices compiled by the Chief Safety Engineer of the Lockheed Missile Systems Division. The list was gathered for the particular problems of our field and there will be additional devices which other companies will require; but many of these devices are applicable to most maintenance operations. If **one** device on this list prevents **one** accident, its purchase is justified. Remember, though, your safety appliances and guards are worthless unless you enforce their use. Severe disciplinary action should be taken with any employee failing to use existing safety guards or devices.

Safety Training

The physical aspects of safety are only a part of the job. Equally, if not more important, is the promoting of safety consciousness in your employees. How do you do this? Many ways. We have prepared a safety quiz which is given to maintenance employees. It is very popular and helps to promote safety consciousness. This quiz is given for the individual's own information. He grades and keeps his own paper, so he alone knows how he does.

Another important means of promoting safety consciousness is the holding of regularly scheduled safety meetings, where safety problems and hazards are discussed and decisions as to action are made. These, if all personnel enter into the discussion, really stimulate interest and show your employees that you are interested in their safety.

Every Maintenance Department should have its own safety committee. Often, in small shops, this committee is combined with the house-

The Hazards of Maintenance

Few occupations in modern industry are as hazardous as the usual maintenance operations:

For the maintenance electrician, the greatest hazard is the electricity itself. . . . BUT more electricians are probably injured in ladder accidents than by electric shock!

The carpenter's main hazards are the power tools he uses. How many thumbs are cut off by table saws each year? How many finger tips sliced off by jointers? How many thighs torn by portable power saws used to cut boards held over the knee? Look at the record.

Riggers, welders, mechanics, oilers, millwrights . . . the hazards of their jobs are well known.

Painters? Eye accidents from paint splashes and ladder and scaffold accidents are most prevalent.

Plumbers and steamfitters are endangered by high pressure steam, natural gas and the other materials they handle.

Janitors have their hazards, too, but they often create more hazards than they are subjected to: wet floors, improperly roped off; sweeping compounds left in aisles; brooms and mops left on floors; and most important, improperly waxed floors—all are hazards to everyone in the area. One hazard not of the janitor's own making is broken glass and other dangerous materials in waste baskets.

ACCIDENTS

keeping committee, as poor housekeeping breeds accidents. The committee should comprise no less than three employees, one the chairman. No supervisory personnel should be included, and the committee should be rotated among all employees so that each will have a chance to serve. This committee should take a tour of all Maintenance Shops at least every two months—preferably monthly—noting all hazards or hazardous acts, and should write a report on the results of the tour. Prompt action

(Continued on the next page)

TABLE 1: Safety Equipment for Maintenance Shops

I. PERSONAL PROTECTIVE EQUIPMENT

A. Head Protection

1. Safety hats
2. Surgeon's caps
3. Face shields
4. Safety glasses
5. Cover goggles
6. Chemical goggles
7. Chemical hood
8. Welder's hood
9. Welder's goggles
10. Welder's helper's glasses
11. Dididium lens safety glasses and other special lenses
12. Ear plugs and muffs

B. Body and Leg Protection

1. Chemical aprons
2. Chemical suits—one and two piece
3. Plastic, surgeon's, leather, cotton, asbestos, and many other types and styles of gloves
4. Dosimeters—film badges, pencil types and others

C. Foot Protection

1. Safety shoes
2. Toe clips
3. Boots—synthetic, rubber (safey toe and non-safety toe)
4. Grounding straps

D. Respiratory Protection

1. Noxious dust and vapor respirators
2. Toxic dust and vapor respirators
3. Self-contained breathing apparatus
5. Chemical cartridge type respirators

E. Miscellaneous

1. Chemical and toxic rescue suits with self-contained breathing apparatus
2. Safety belts and harnesses
3. Fire fighting and fire rescue suits

F. The Safety Department utilizes many survey meters and sampling devices to establish a need for particular personal protective equipment before an operation begins.

II. MACHINE GUARDING

A. Saws

1. Pull back—radial
2. Splitters
3. Kickback preventers

B. Jointers

1. Knife Guards

C. General Guarding

1. Most machines have a point of operations guarding need and these guards are sometimes provided by the manufacturers. If not provided, engineering and maintenance personnel can design, build and install the the necessary guards.

2. Power transmission shafts, pulleys, belts, gears, couplings, etc., must be guarded if within 7 feet of the operating surface or floor.

3. Punch presses, shears, and similar operating equipment can be provided with a gate guard or photoelectric cell to stop the machine operation when the safety device is actuated by the operator's hands.

Maintenance Accidents

(Continued)

must be taken on all hazards found, as this committee, knowing that they are not being recognized and nothing is done about their findings, will soon lose their effectiveness and interest.

Many companies publish safety booklets for distribution to all employees. These booklets cover the general safety regulations of the company, city and state. They are extremely valuable, if they are read, understood and complied with. It is the job of the maintenance supervisor to see that this is accomplished.

Safety from the Start

Each new employee should be well oriented on the safety policies of the company as soon as he comes on board. He should be impressed with the severity of violating safety rules as well as with the concern of his company and supervision for his safety. The importance of this preliminary orientation cannot be over-emphasized, as a new employee is always extremely sensitive to the policies of his new company, and generally he remembers his first orientation for a long time.

The most important and effective method of promoting safety consciousness is through "Safety Supervision." This is the constant supervision, by management, of the operating practices of all personnel with an eye to safety. Each supervisor who has a job being performed should not only ask himself, "Is the job going as planned?", "Is the quality of work up to our standards?", "Are the men working efficiently?", and similar questions, but also "Is the job being done in a safe manner?", "Are all safety devices in use?". The constant awareness by supervision of the safety aspect of each job is the most effective way of reducing accidents. This "Safety Supervision," combined with constant training of the men, will give you a safe shop and safe operations.

Publicize Good Performance

Once you have set up your safety program in maintenance, with your safety committee formed, quizzes prepared, safety meetings arranged and safety devices and appliances available, you should plan to reward groups and individuals in the shop for good safety records. When any employee figures out a new safety device, or is saved from injury by a safety device or appliance, arrange to have his picture taken and an article published in the company paper. The same goes for groups within maintenance who build up good safety records. Publicize these groups with pictures and articles. Another good system is to promote competition among the various groups in maintenance by awarding a safety plaque to the group having the greatest number of man-hours without accidents. To help stimulate the program, you might give a "White Elephant" award to the group with the worst record, requiring this group to display the "White Elephant" at all times. Written commendations for employees who have excellent safety records also should be given, with a copy for their folders.

Results of Programs

What are the results of a program as we have outlined above? First, you will materially reduce your lost-time accidents and thereby keep more men on the payroll to accomplish the job. Second, you will save your company many dollars in insurance costs. Third, you will increase the morale of your department, thereby promoting greater efficiency in your men. Last, but not least, you will be doing your part to help protect the men of your department from suffering injuries which may affect them the rest of their lives.

Adage Holds True

The old adage, "accidents don't just happen—they are caused" never holds truer than in this day and age. Our job is to try and remove as many potential causes of accidents as we can. Safety programs pay big dividends in dollars, efficiency and morale. Maintenance can't afford to be without such a program.

From an address presented at the 10th Plant Maintenance & Engineering Conference. Picture by courtesy of U. S. Navy Dept.

Sight Saving

(from page 9)

plished in less than a week's time. Based upon many studies of industrial populations, one-third to one-half of the employees will need prescription lenses. Getting these men examined and equipped should not take more than about three or four weeks, depending upon how quickly appointments can be scheduled and optical laboratory work completed.

The final item in our N.Y.S.V.S. Occupational Vision plan is a continuing consultation service from year to year. Employees are shifted from one job to another. Rough shop usage requires that safety glasses be readjusted, realigned and repaired at frequent intervals. New employees are added to the payroll from time to time. Finally, visual skills deteriorate from year to year—a visually efficient person today can be a visually inefficient person a year from today. A definite schedule of re-visits is set up with one of the Panel Members visiting the plant several hours each month or oftener if needed. Thus, the program is kept alive, active and producing the expected results in occupational achievement and freedom from eye injury.

How is this paid for? Under the Vision Services plan, the participating optometrists submit their bills for professional services and materials to our organization headquarters, which in turn renders an itemized statement to the plant management. No money is collected from employees by individual optometrists, nor is management required to audit and issue vouchers covering a lot of small individual transactions. Management knows in advance what its costs will be, what services its employees will receive and the standards under which the safety glasses will be fabricated.

This vision service is designed to improve employees' safety and comfort while at the same time increasing production efficiency in a program that quickly translates itself into dollars and cents. This is a program where no one is hurt, where every one benefits.

From an address presented at the 29th Annual Greater New York Safety Convention. Picture by courtesy of American Optical Co.

ROOF BOLTS INCREASE SAFETY OF AQUEDUCT TUNNEL

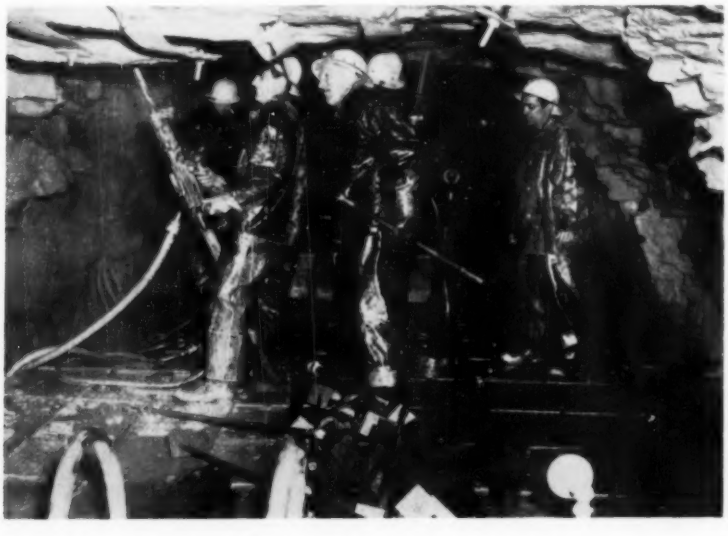
Taking a cue from the mining industry, project engineers are using steel mine roof bolts to support all 44 miles of New York City's new West Delaware water tunnel—thereby increasing the safety of operations and saving several million dollars in construction costs.

To date, use of the roof bolts on the project in place of conventional supports has cut tunneling time in half, saved thousands of dollars per tunnel mile, and provided excellent protection from roof falls, according to the city's Board of Water Supply, supervising authority on the site. Its chief engineer is Stanley M. Dore.

Employed by the millions in mining, roof bolt supports were first used in a major non-mining tunnel application in the East Delaware tunnel, completed in 1955 by the Board of Water Supply. Experience and know-how gathered during this earlier construction have been carried over to the more extensive West Delaware job.

Instead of forming the conventional arched tunnel brace, using rib steel supports, roof bolts are inserted directly into the interior carved rock surface—and thus permanently tie overhead strata into a secure mass. As in mine tunnels, the roof bolts literally stud the whole roof area, each placed but a few feet from others around it. Upon completion, a roof-bolted section is immediately ready for the installation of forms for the tunnel's concrete lining. This, according to the West Delaware Tunnel Constructors, one of the tunnel contractors, eliminates the highly dangerous, laborious and expensive procedure necessary with the use of rib steel supports—the removal of fallen rock and blocking between the ribbed braces and the rock surface.

A rib structure takes up a substantial amount of room, according



ABOVE—
Installed, roof bolts follow the contour of tunnel roof, making underlying area ready immediately for the installation.

LEFT—
Unlike conventional steel rib supports, roof bolts are checked for tightness without delaying other tunnel work.

Another Accident Checked

Three-Time Winner

As a two-time winner, an electrician at Central Hudson Gas & Electric Corp. recently had his eyesight saved for the second time by wearing eye protective equipment. Back in 1953, Electrician 2/C Frederick Cabe became Central Hudson's 21st Wise Owl. The National Society for the Prevention of Blindness, which sponsors the Wise Owl Club, has recognized Mr. Cabe's second "eye-saving" incident by approving the award of a Special Citation, making him the 8th Central Hudson employee to become a two-time winner.

Mr. Cabe, performing maintenance work on a transformer, had attached a string to a scraping knife to prevent its accidental loss inside the transformer. Completing the work, he snapped the string from the knife and, in doing so, the blade of the knife struck his safety glasses and left cheek. The blade lacerated his cheek and scarred the rim of his glasses which deflected the knife from striking his eye.

The 1953 award to Mr. Cabe resulted when a thirty-ampere main entrance fuse exploded and sent molten metal against the right lens of his safety glasses.

As for his being a "three-time" winner, he has in the past benefited from another safety device, the parachute. He is a member of the famous Caterpillar Club, having had the experience of parachuting from a disabled aircraft.

Wise Owls at Central Hudson now number 61, in addition to the eight Special Citation Awards. Shown in the picture, from left to right, are: John Rasmussen, Manager Construction Department; Frederick Cabe; and George J. Ruoff, Safety Director.

Roof Bolts

(from page 15)

to tunnel engineers. In contrast, roof bolts hug the rock surface of the tunnel throughout and provide more working space. In some installations, the roof bolts, closely spaced, are the sole means of roof support. In others, steel straps, fastened by the roof bolts, supplement the anchoring effect of the latter. Also, roof bolting materials require but a fraction of the storage space needed by the rib steel members.

The conventional rib-steel supported structure demands that all phases of the tunneling cycle on a forward cycle be held up until installation of the steel structure on the section behind is complete. In contrast, the entire roof bolting operation for each advance takes only an hour to complete and may be done right along with the drilling phase. A tunneling cycle is comprised of drilling, blasting, mucking, scaling and track laying phases. With the aid of the roof bolts, miners are advancing the tunnel at the rate of 11 feet per cycle or 22 feet during every eight-hour working shift. A similar installation of rib steel supports, however, would take about four times as long to erect and require an additional five men per crew, according to the West Delaware Tunnel Constructors.

Installation Process

To begin each cycle, a drill jumbo is advanced to the tunnel face where roof bolts installed during the previous cycle are checked for tightness. Next, new roof bolt holes are made from atop the drill carriage where bolts are inserted and tightened until a secure clamp is achieved. Once installed, bolted roof sections are coated with a cement mortar, or gunite, to prevent small rock fragments from falling in the tunnel.

6 Foot Anchoring

Specifications for the new tunnel call for the use of one-inch diameter split wedge bolts and ¾-inch diameter, high-tension expansion shield bolts. Both types are capable of sustaining a 40,000 pound pull in hard rock, according to a leading supplier. Roof bolts are securely fastened in the tunnel roof to a minimum depth of six feet where they are tightened with approved calibrated torque or impact wrenches. In place, each bolt must be tightened to at least 200 foot-pounds of torque.

When completed in 1961, the tunnel will form a new link in the New York City water supply system connecting the Cannonsville Reservoir (currently under construction) to the Rondout Reservoir. It will measure eleven-feet, four-inches in diameter and cut through fairly uniform strata of Devonian shale and sandstone. Although prone to fracture, the finely bedded shales are held securely in place by the roof bolts, according to the contractor.

Pictures by courtesy of Republic Steel Corp.

Fig. 1—Hospital operating rooms, other locations using explosive materials are danger areas, need conductive flooring.

How to Maintain Conductive Floors

by J. L. BRENN, L.H.D.

Safety engineers and other industrial executives, because of the increasing use of explosive materials and gases in their plants and laboratories, are becoming concerned over the safety of their employees and the protection of their plants against the hazards of explosions.

One of the chief causes of explosions is static electricity. Static charges originate from many sources. The movement of a machine, or the normal motion of persons wearing certain types of clothing, can create static electric sparks that are capable of causing violent explosions.

Because hospitals have experienced this problem also, there is much to be learned from the research and development done for them. Their problem became so acute that a recent U. S. Government report stated, "There is probably no combination of personnel and equipment anywhere more liable to produce casual, dangerous charges of static electricity than that found at present in the anesthetizing areas of most hospitals."

Fig. 2—Conductive floors must be kept clean with soapless detergents. Insulating film is formed by hard water, soap.

Fig. 3—Flooring material can be preserved by wax, but only "wax for conductive floors" should be used.

How to Prevent Static Electric Sparks

Certain precautions can be taken to reduce the amount of generated static electricity. The use of unironed cotton clothes, conductive-soled shoes and non-sparking metals will help. Static electric sparks can be prevented by electrically "tying" every possible static charge producer together. This prevents the generation of different electric potentials.

To do this, many plants run grounding strips from metal fixtures and equipment to a common

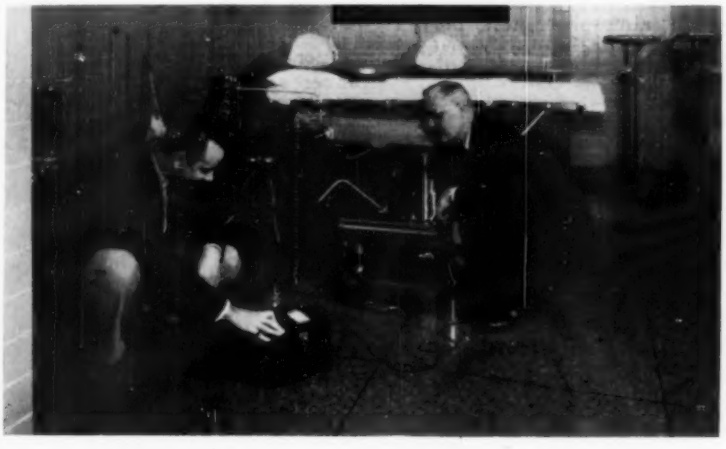


Fig. 4—Regular tests of electrically conductive floors should be made. This N.F.P.A. test is adequate and simple.

ground which equalizes electrostatic potential throughout the work area. The common ground is usually a conductive floor. This is a floor which will allow static electric charges to safely pass from a person, or from equipment, through the floor. The floor must then quickly and easily dissipate the static electricity.

Conductivity Important

Such a floor must be durable, waterproof and have permanent adhesion. Above all, it must be **permanently** conductive.

One problem which often arises is how to maintain the electrical conductivity of conductive floors at safe levels. It is not an easy task to keep conductive floors clean and also to keep them conductive. Conflicting claims by manufacturers of floor maintenance products have clouded the issue. Conductive flooring makers have avoided the issue. As a result, the user has been "on his own."

Ordinary soaps and waxes won't work. They contain fats which form a film that soon insulates a conductive floor and destroys its conductivity.

Yet some manufacturers of cleaning supplies claim that one very thin coat of an ordinary wax or seal is as good as a special "wax for conductive floors." They say all waxes are alike . . . so just use a standard wax, and you'll be safe. This is a dangerous situation requiring careful investigation.

How Should a Conductive Floor Be Cleaned and Waxed?

So the questions arise: which type of cleaner and which wax is safe to use on a conductive floor? Or, should a conductive floor be scrubbed and waxed at all?

Assuming that a conductive floor is effective upon installation, it is then logical to assume that an important cause of conductive flooring failure is improper maintenance of the floor surface.

As in all questions of such importance, the opinon of experts is the most valuable. The National Fire Protection Association (N.F.P.A.) says it is a safe practice to wax a conductive floor, but they qualify their answer. They say, "Any waxes, polishes or dressings used for floor maintenance or conductive floors **should be of an electroconductive type.**"

In other words, the authoritative guide in this field says that ordinary waxes and seals **cannot be safely used** on conductive floors. Their findings warn that only a wax of an electroconductive type should be used.

Underwriters' Laboratories Test Products

Underwriters' Laboratories, Inc., a member of the N.F.P.A., went one step further when asked to examine a wax that claimed to be designed specifically for use on conductive floors and a cleaner which was also deemed safe for conductive floor use.*

Exhaustive tests were performed using both of these products.

Specimens of conductive flooring were coated with the electroconductive-type wax. These waxed surfaces were then coated twice each working day with various antiseptic solutions which are usually encountered on the floors of operating rooms. After 24 applications of each antiseptic had been made, results showed that only a very small, minor change had occurred in electrical resistance. Also, frequent scrubbing with the cleaner had not materially affected the conductivity of the flooring used in the test.

Then test flooring samples were coated with the special wax for conductive floors and stored for four weeks in an airtight vessel containing calcium chloride. At the end of the four-week period in this bone-dry atmosphere, tests proved that all the samples remained within the proper N.F.P.A. limits for safety.

Results of Tests

Finally, Underwriters' Laboratories performed a series of tests, lasting six weeks, on several conductive flooring materials, using the wax for conductive floors. Two coats of the wax were applied to each of the various materials. The surfaces were mopped daily with clear water. Once each week the wax was removed, using the cleaner for conductive floors, and the flooring was then rewaxed. This provided an accelerated test. Results showed all flooring samples to be safe at the conclusion of the test.

Many industrial plants, as well as hospitals, are now relying upon the statements of the N.F.P.A. and the tests of Underwriters' Laboratories, Inc., regarding a safe wax and cleaner for conductive floors. In fact, some firms are using the uncolored conductive-floor wax on all **non**-conductive floors which adjoin conductive floor areas. This avoids the tracking of non-conducting wax onto the conductive flooring.

To Wax or Wane?

While some authorities state that a conductive floor need not be waxed, let us state that **no floor must be waxed.** But most floors which are not waxed are not acceptable to the user. They are harder to maintain, unattractive and impossible to keep sanitary. Wax protects the flooring, providing a surface which is smooth and from which soil may be relatively easily removed. Wax also creates a much more attractive appearance. So there are good reasons why all floors, including conductive floors, should be waxed.

Remember Floor's Purpose

The conclusion of experts in the conductive floor field is that these floors can be maintained in nearly the same manner as any other floor. The exception is that the wax and cleaner used must have safe electric properties. And the safest way to stay within limits established by N.F.P.A. seems to be the use of a wax for conductive floors and a cleaner which bears the seal of Underwriters' Laboratories' Reexamination Service. Then one can be certain everything possible has been done to safely maintain conductive floors, to reduce the danger ever present in static electricity and still have attractive floors.

* A source for further information concerning the U.L. approved wax and cleaner for conductive floors can be obtained upon inquiry to the Editor.

Pictures by courtesy of Huntington Laboratories, Inc.

Resurfacing Compounds

(from page 11)

equipment. Half as much will do for foot traffic. The practice of troweling out to a feather edge is objectionable, since anything less than the recommended thickness is likely to fail under heavy traffic. Although the methods of application recommended by manufacturers differ somewhat in detail, they should be followed carefully.

Oxychloride floors respond to the usual cleaning and maintenance, and the adhesion of repair patches is good. There are many reports, however, of poor paint adhesion.

(To be continued in the December issue.)

Material by courtesy of Small Business Administration.

Philadelphia Hosts Maintenance Show

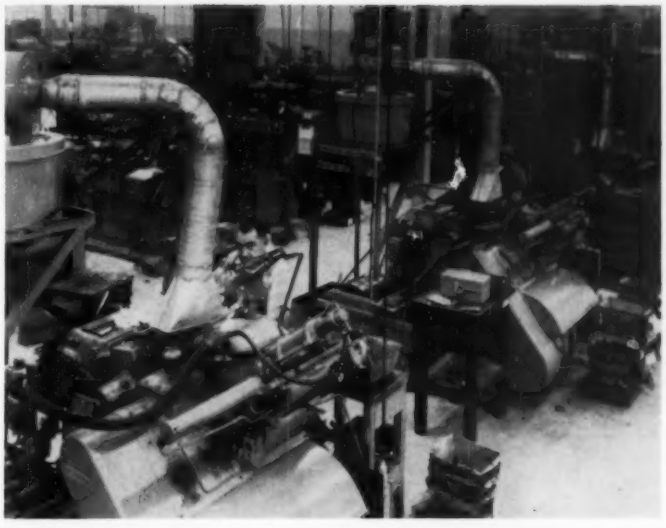
After an interval of four years, the Plant Maintenance & Engineering Show will return to the East in 1960, it was announced by Clapp & Poliak, Inc., New York, producers of the exposition and the extensive conference held at the same time. The four-day show will be held at Convention Hall, Philadelphia, Jan. 25–28, and the concurrent conference during the first three days, Jan. 25–27. The show is one of the largest and most important in the country.

Exhibits have grown substantially in both number and size, and all available space in Convention Hall will be needed to accommodate the displays. One of the most important new aspects of the exhibits will be the various products and equipment used to eliminate factory pollution of air and water. The pollution problem is an important source of difficulty both to management and the communities in which plants are located. Virtually all exhibits will emphasize cost reduction through preventive maintenance, a system which anticipates breakdowns and avoids them.

Advance registration cards, conference and hotel information, may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Safety Maintenance SALUTES

A SAFETY IDEA



Collectors Eliminate Oil Mist

The Allen Manufacturing Co. of Hartford, Conn., manufacturers of hex socket screws, dowel pins, pipe plugs and accessories, recently installed mist eliminators to reduce cutting oil vapors to a minimum.

Pictured above is a small section of the Allen Grinding Department. Each machine is equipped with a vapor, fog and mist eliminator. The moist air, fog and mist are sucked away from the grinding tools—at the point of contact.

Allen found that the elimination of fumes and moisture laden air improved working conditions—and spot time-checks of operations revealed increased worker efficiency.

Picture by courtesy of The Aget Manufacturing Company.

ISM Elects

The Institute of Sanitation Management has announced the results of its annual election of officers and directors. Raymond Q. Duke, Operations Supervisor of Detroit Edison Company, Detroit, Michigan, was chosen President-Elect. Edward Hupert, Manager of the Management Methods Unit, Buildings Management Branch of the U. S. Post Office Department, was elected Vice President.

The new officers took over their positions at the Institute's annual meeting in New York City. At that time, Albert J. Burner, Supervisor of Cleaning Standards for the Port of New York Authority, who has served as President-Elect for the past year, assumed the presidency of ISM.

The ISM elections were held by mail ballot. A total of 71 members competed for elective positions. In addition to Duke and Hupert, 35 members of the organization were elected to various national and Division officers. The twelve members elected Division Chairmen and Secretaries also become national Directors of the Institute by virtue of their positions.

Techniques of

The following material is based on "The Principles and Techniques of Mechanical Guarding" published by the Bureau of Labor Standards, U. S. Department of Labor and compiled by William G. Griffin and Sheldon W. Homan of the Office of Technical Services, under the direction of Robert D. Gidel, Chief, Division of Safety Standards and Services. Part 1 of this article, which was published in the October issue of "Safety Maintenance," outlined the danger points of mechanical equipment and the types of guards and guarding materials available.

It is recognized that a given situation—a hazard-creating motion or action—may frequently be guarded in a number of ways, several of which may be satisfactory. The selection of the guarding method to be used may depend upon a number of things—space limitations, production methods, size of stock, frequency of use, and still other factors may be important in making the final decision. It is not the intent of this article to suggest which method of guarding is the best for a given situation, but rather to show that there are a number of ways to guard each different condition. This will be done by illustrative situations which may be guarded by a variety of methods.

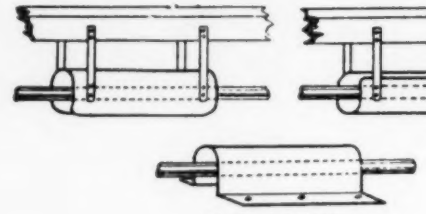
In presenting the illustrations, the various motions and actions are shown with typical guards illustrating the various guarding techniques. It is not possible to apply all of the guarding techniques to all of the motions or actions, but an effort has been made to show those that are frequently found in industry.

Guarding Rotating, Reciprocating, or Transverse Motions

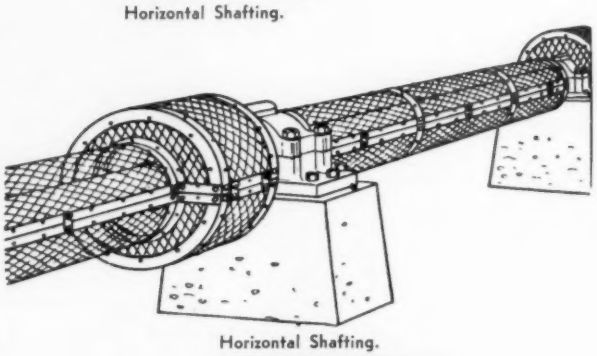
Rotating, reciprocating and transverse motions are forms or directions of motion that are used for a variety of purposes. They may be used to transmit power, as for example a revolving shaft or pulley (rotating), a moving piston (reciprocating), or a moving belt

(Continued on page 22)

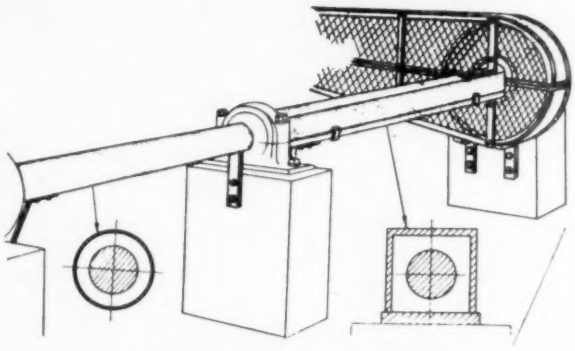
Fig. 1: Guarding Rotating Motion by Enclosure Guards



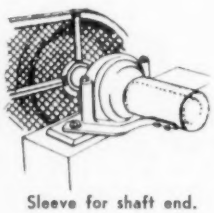
Horizontal Shafting.



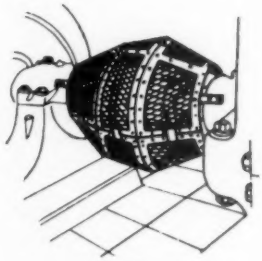
Horizontal Shafting.



Horizontal shafting and belt and pulley.



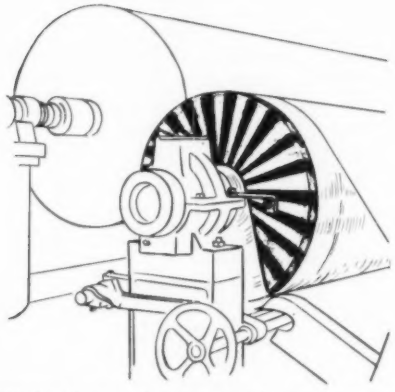
Sleeve for shaft end.



Coupling.

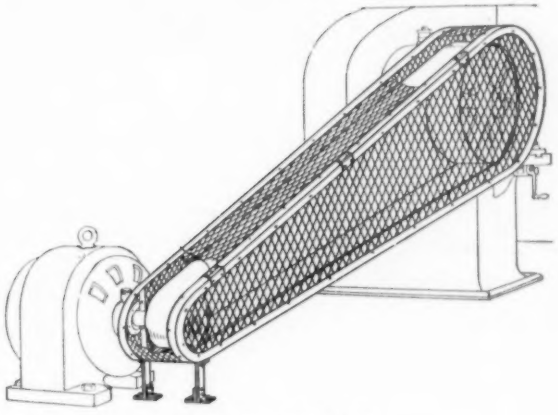
Mechanical Guarding

Fig. 2: Guarding Rotating Motion by Barrier Guards



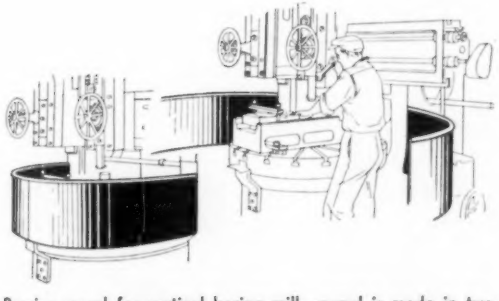
Winder drum end guard—guard provides a stationary object to grasp if operator should slip while changing paper.

Fig. 3: Guarding Rotating and Transverse Motions by Enclosure Guards

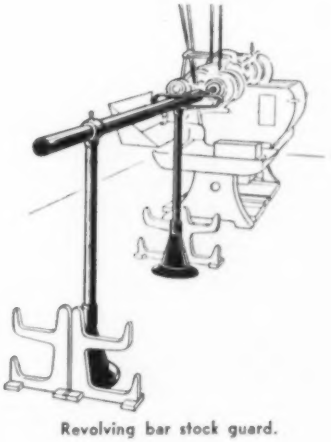


Pulleys with inclined belt.

Fig. 4: Guarding Rotating Machines or Machine Parts with Barrier Guards

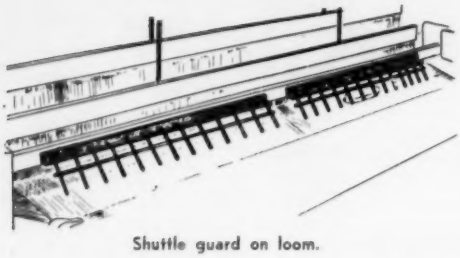


Barrier guard for vertical boring mill—guard is made in two sections, hinges to machine and is easily opened.

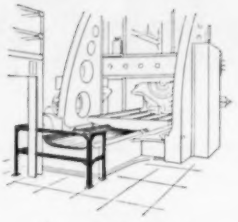


Revolving bar stock guard.

Fig. 5: Guarding Reciprocating Motion of Machine Parts by Barrier Guards



Shuttle guard on loom.



Planer table guard.

Fig. 6: Elimination of Rotating Motion Hazard by Means Other Than Guarding

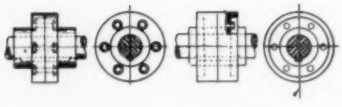
Safety set screws.

Split coupling.

Solid sleeve coupling.

Clamp coupling with safety sleeve.

Compression type coupling.



Bolt heads & nuts countersunk.

Flanges project beyond bolt heads & nuts.

(from page 20)

(transverse). Motions are also used to perform work by giving action to a tool or die which performs a cutting or shearing action. Thus, a circular saw or milling cutter (rotating), a metal planer or shaper (reciprocating), or a band saw (transverse), are examples of using motion to perform useful work by means of a tool.

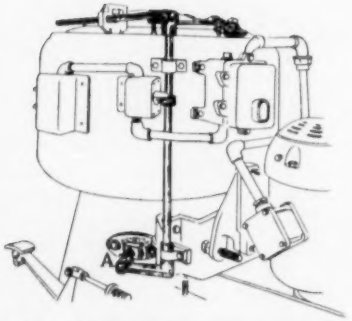
Motion is also used as a means of performing work without the cutting action of tools. A centrifugal extractor or dough mixer (rotating), a shaker screen (reciprocating), or a belt or screw conveyor (transverse), are examples of using the energy of motion to perform useful work.

The illustrations (Figures 1–7) are intended to show recognized techniques for guarding various forms of motion used for transmitting power and for performing work without benefit of tools.

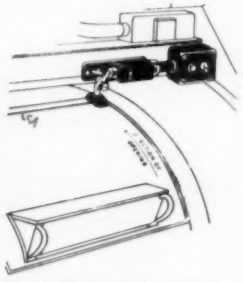
Where tools are used to perform useful work, a cutting, punching, bending, or shearing action is involved. Techniques of guarding these various actions will be illustrated under the general heading of the type of action, instead of under the heading of the type of motion used to drive or power the tool.

(Continued on page 25)

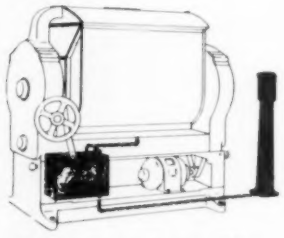
Fig. 7: Guarding Rotation Motion of Machine Parts by Interlocks



Interlocking extractor cover guard. The cover is mechanically interlocked with the spindle so that the cover cannot be removed until spindle is at rest.

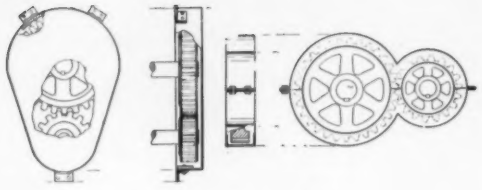


Electrical interlock on washing machine. When door is opened, the circuit to motor drive is broken, thus stopping the machine.

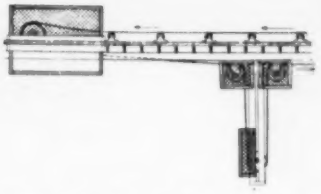


Electric interlock for tilting dough mixer. The electric circuit is closed only when the barrel is upright. Mixer can be operated in tilted position by constant pressure applied to a second switch.

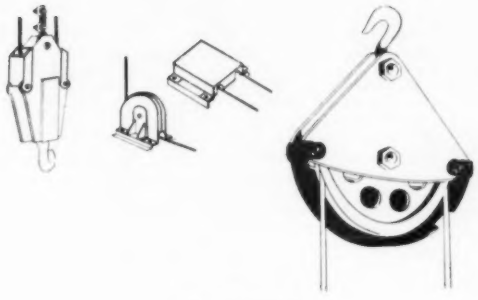
Fig. 8: Guarding In-Running Nip Points by Enclosure Guards



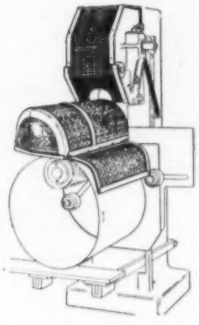
Spur gear guards.



Elevated conveyor belt, pulleys, and belt tightener guard.

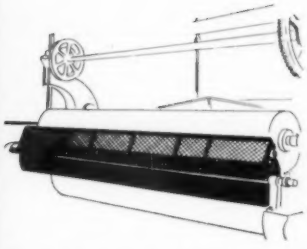


Sheave guards.

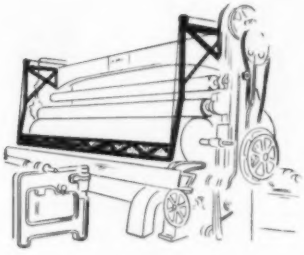


Dies of drum-corrugating machine.

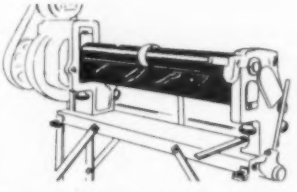
Fig. 9: Guarding In-Running Nip Points by Barrier Guards



Guard is so hung that it can be swung down and out of the way when roll is being started or removed.

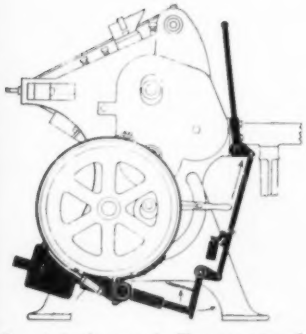


Guard is counterweighted and swung up and out of the way when roll is being started or removed.

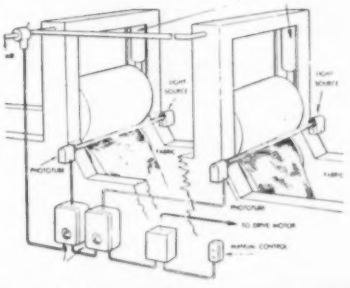


Upper roll covered with stationary cylindrical guard. Lower roll has apron guard. Opening between guards is less than 3/8 in.

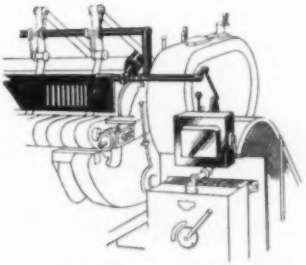
Fig. 10: Guarding In-Running Nip Points by Interlocking Device



Dough brake guard. The pressure of the operator's body against the horizontal release across front of machine simultaneously breaks electric current at contact switch and trips weight operating brake on flywheel, thus quickly stopping machine.

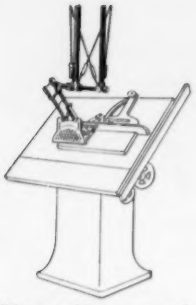


Textile finishing machine. The photoelectric control beam is projected across the 12-foot width of the pressure rolls at the nip where the two rolls meet. Any part of an operator's body or any other object coming within the danger area of the nip will break the control beam. If the beam is broken, photoelectric relay action immediately stops the drive motor and at the same time operates the air cylinder solenoid valve, releasing pressure and opening the rolls.

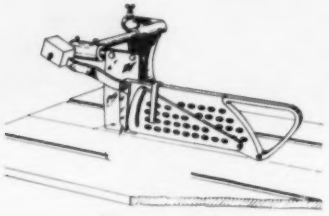


Flatwork ironer guard. If operator's hand strikes hinged barrier, the contact switch opens circuit and stops machine.

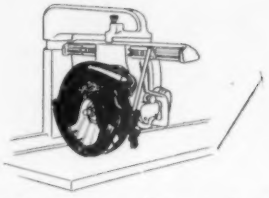
Fig. 11: Guarding Cutting Actions by Enclosure Guards



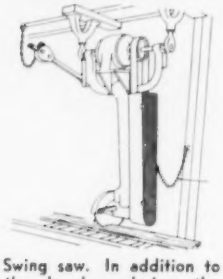
Tilting table saw guard.



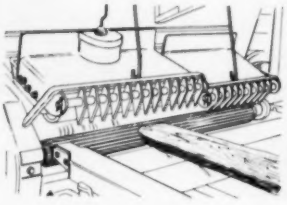
Rip saw guard.
Circular saws should be provided with a hood that covers the saw at all times to the depth of the teeth.



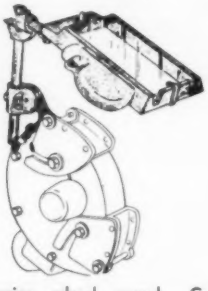
Radial saw. In addition to hood encasing the blade, an adjustable stop should be provided to limit forward travel and head should automatically return to starting position.



Swing saw. In addition to the hood enclosing the blade, the swing saw should be provided with a limit chain.

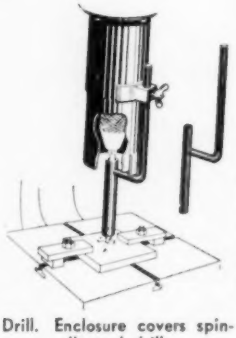


Edger. The saws of the edger should be enclosed and there should be pressure rolls on both the feed and take-off sides. Non-kickback teeth should be provided on at least the feed side of the saws. All belts, pulleys and gears should be enclosed.

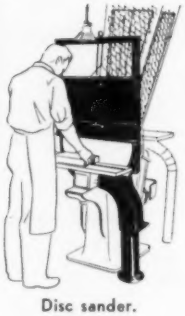


Abrasive wheel guard. Guard should be strong enough to withstand the shock of a bursting wheel and be adjustable to the wear of the wheel; tempered or laminated glass with protective glass on the underside should be used.

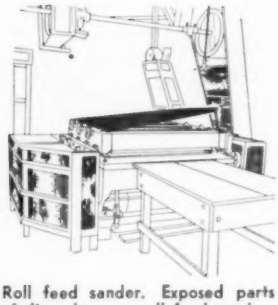
Swing saw hood.



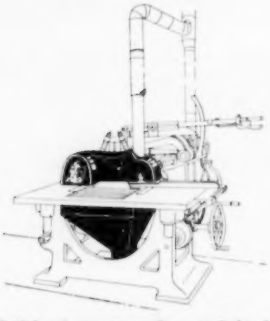
Drill. Enclosure covers spindle and drill.



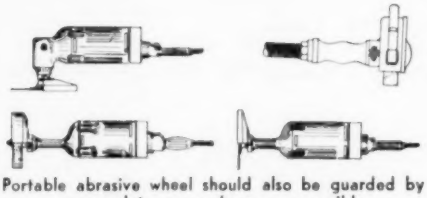
Disc sander.



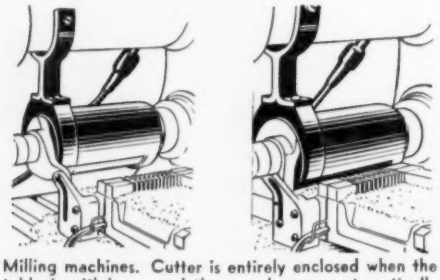
Roll feed sander. Exposed parts of disc, drum or roll feed sanders should be guarded except portion where the material comes in contact with the abrasive.



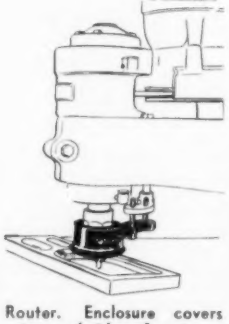
Self-feed rip saw. Saw and feed rolls should be completely enclosed.



Portable abrasive wheel should also be guarded by as complete an enclosure as possible.



Milling machines. Cutter is entirely enclosed when the table is withdrawn and the guard opens automatically as table moves forward.



Router. Enclosure covers top and sides of router.

Drum sander.

(from page 22)

Guarding In-Running Nip Points

In-running nip points may exist under two broad classes of conditions, namely:

1. Those purposely created to do useful work.

2. Those which are incidental to the transmission of power or the application of motion, the nip point itself doing no useful work.

Nip points that are purposely created to do useful work would include situations such as calendar rolls used for finishing paper, rolls used for mixing ink or rubber, and rolling mills.

Nip points created incidental to the transmission of power would include the nip point of a belt and pulley, the meshing of gears, or the take-off point of a belt conveyor. Nip points created incidental to the application of motion would include the nip or pinch point of the moving bed of a metal planer with the frame of the machine or an adjacent fixed object.

In any case, guarding is necessary and various means may be used to provide protection. Figures 8-10 show typical nip point situations and techniques for guarding.

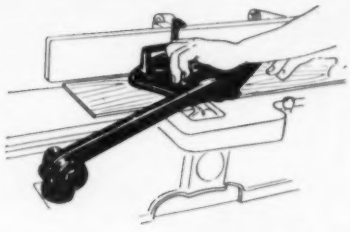
Guarding Cutting Actions

Cutting action is involved in the whole range of machine tools used for cutting metal, also for machines used for working on wood. The characteristic of a machine tool is that the metal removed is in the form of chips. This characteristic also applies to machines used for cutting wood, although wood working machines are not referred to as machine tools. Many machines used in the food, plastic, paper or textile industry, as well as other industries, also employ cutting action. The hazard lies at the point where cutting takes place.

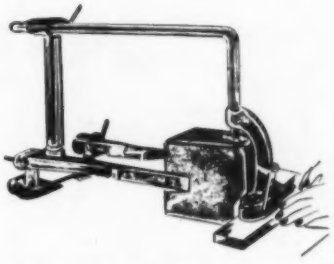
Various forms of motion may be involved in cutting action, but the kind of motion is not the determining factor in selecting the best guarding methods. In many cases, a choice of guarding methods is available. Figures 11–13 show various methods of guarding typical cutting actions.

(The concluding section of this article will appear in Dec. issue.)

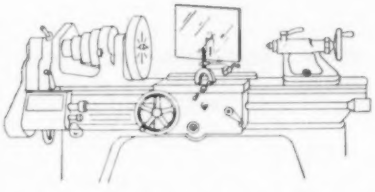
Fig. 12: Guarding Cutting Actions by Barrier Guards



Jointer guards should automatically adjust themselves to cover all sections of the head on the working side of the fence or gage and should remain in contact with the material at all times. The section of the cutting head back of the fence or gage should also be guarded.

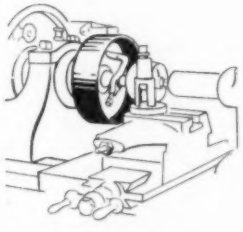


Shaper guard. The cutting head of each wood shaper should be enclosed by an adjustable guard so designed as to keep the operator's hand away from the cutting edge. Patterns or jigs for holding stock while shaping are also desirable.

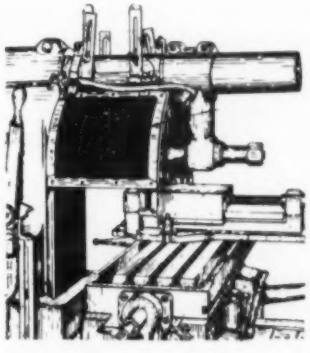


A clear plastic shield, held in place by a magnet, will protect against flying particles.

LATHES

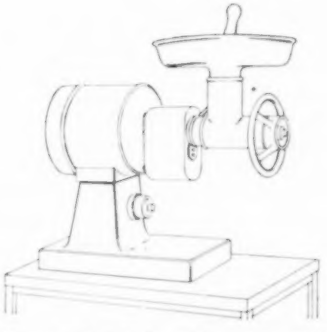


A metal band around the face plate prevents contact with lathe dog.

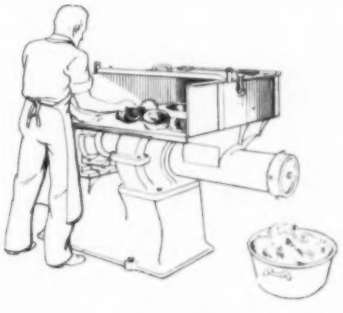


Milling machine. Mesh guard over cutter to protect against contact and flying particles.

Fig. 13: Guarding Cutting Actions by Position



Hopper of such size and neck so small that operator's fingers cannot come into contact with worm.



Distance from front of hopper to opening over worm is such that operator cannot reach into worm.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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Missouri Enacts Occupational Diseases Law

Effective August 29, 1959, an occupational diseases law was made effective in Missouri. The term "occupational disease" is defined as a "disease arising out of and in the course of the employment." An election must be made before there is coverage under the law and, in making an election, the employer may exclude loss of hearing due to industrial noise.

REOPENED CLAIM—Failure to Prosecute Previous Claim

Application was made to reopen a claim that had been dismissed for Lack of Prosecution. The application was granted, although it was made almost a year after the original petition was dismissed for failure to prosecute. On appeal, the Court reversed on the ground that claimant had failed to show why he had not prosecuted the original claim. HELD: Public policy dictated the completion of cases where the proceedings had been regular, and a party was not to be penalized for the inertia of his adversary. Since there was no showing that the claimant had been denied any rights, there was no reason to reopen the claim.

Nemeth v. Otis Elevator Co., Inc.; N. J. Superior Court, Appellate Div. No. A 234–58, May 7, 1959.

DEATH BENEFITS—Head Injury—Arising Out of and In Course of Employment

The plaintiff, widow and dependent of decedent, was awarded compensation for his death. Decedent had been employed by defendant for many years as a fireman and his work consisted of reading gauges on an instrument board, looking into boilers through peepholes and setting automatic stokers. In the last week of July, 1954, the plaintiff noticed a cut on the head of the decedent above his left ear. When he was questioned, he told her at first that a fellow employee had done it; later he said that he had bumped his head while at work. After complaining of headaches that summer, decedent came home one day in a dazed condition. On September 12, 1954, the decedent was operated on and a large organized subdural hematoma was found. The decedent died on September 24 as a result of the hematoma and the operation. The specialists were of the opinion that the hematoma could be caused by a blow on the head, even a slight one, and that the trauma occurred from 4 to 12 weeks before death. Neither the plaintiff nor the decedent gave the doctors a history of head injury, and no report of any head injury was made to the defendant until after decedent's death and then by the plaintiff. The finding of the commissioner (that decedent sustained a blow on his head arising out of and in the course of his employment, resulting in the subdural hematoma and death) recites the evidential statement by plaintiff of her husband's explanation of the cause of the cut on his head. It makes no attempt to determine whether the blow was inflicted by a fellow employee or was a bump sustained while at work. A finding should state the facts found and should not contain excerpts from evidence and purely evidential facts. Plaintiff had the burden of proof. The finding in this case fails to establish with any degree of reasonable probability that the injury occurred during the course of the employment or that it arose out of the employment. There is error; judgment set aside and case remanded to Superior Court with directions to sustain the appeal of the defendant.

D'Angelo v. Connecticut Light and Power Co.; Connecticut Supreme Court of Errors. June 3, 1959.

HEART CONDITION—Strain and Exertion—Causal Connection

The widow of the deceased appealed the dismissal of a dependency claim. It was contended that the court erred in finding that there was no causal connection between the death of the deceased and the work in which he was engaged at the time that he suffered a fatal heart attack. The deceased, while in the process of loading one-hundred pound bags of chloride onto a truck of the defendant, suffered a myocardial infarction. The deceased died thirteen days after the initial attack. Medical testimony established the fact that the work at the time of the attack was not so substantially different in nature from that to which he had been accustomed that it would provide a basis for the establishing of

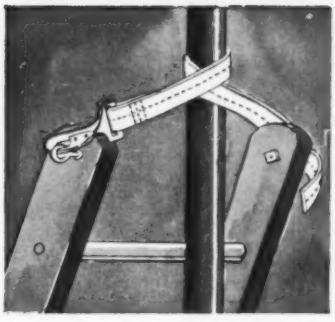
a causal relationship between his work and the attack. The deceased's duties included sweeping floors, reading meters, installing meters, doing pick and shovel work, and loading bags of chloride onto a truck. On the afternoon of the heart attack, the deceased with his fellow laborers was loading bags of chloride onto a truck in the garage of the defendant. It was alleged that the room temperature in the garage was extremely hot and that it was very humid. After loading two one-hundred pound bags onto the truck, the deceased became ill, was hospitalized and died as a result of a myocardial infarction. The testimony of the attending physician and that of the heart specialist was at variance as to the causal relationship that might have existed between the lifting and straining required by the work of the deceased and the precipitation of the attack. Basing its conclusion on the testimony of the attending physician, the consultant physician and the heart specialist, the court held that there was insufficient proof to establish a causal relationship between the work and the attack of the deceased. Affirmed.

Loew v. Borough of Union Beach; Superior Court of New Jersey, Appellate Division. No. A-94-58. May 12, 1959.

EARNING CAPACITY—Mild Permanent Partial Disability—Back Injury—Proof Required

Claimant injured his back in January, 1953, but lost no time from work as a result of such injury. There is medical proof that he sustained a mild permanent partial disability. An award was made by the board to claimant for reduced earnings, but there is no substantial proof to establish relationship between the mild disability and the lower earnings. Such proof should be present to sustain a finding that the lower earnings are attributable to the injury rather than to other factors (such as a strike which occurred in this company). Award reversed and claim remitted.

Haynos v. American Brass Co.; New York Supreme Court, Appellate Division, Third Judicial Department. No. 1061. June 9, 1959.



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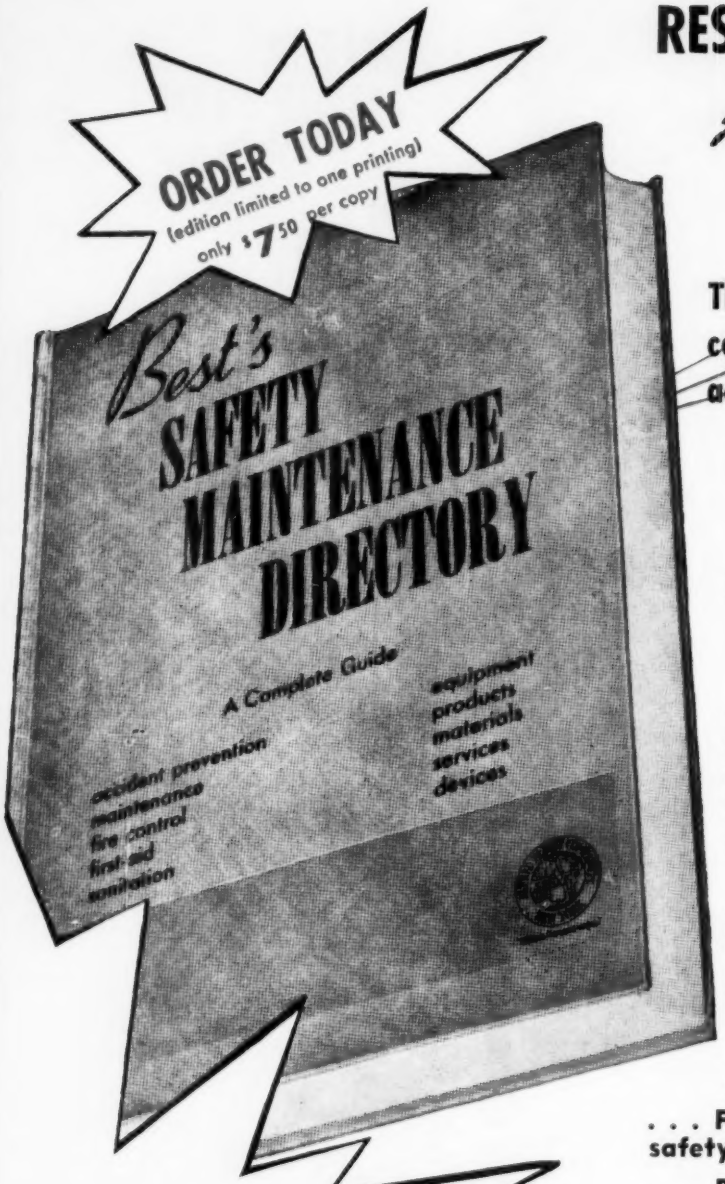

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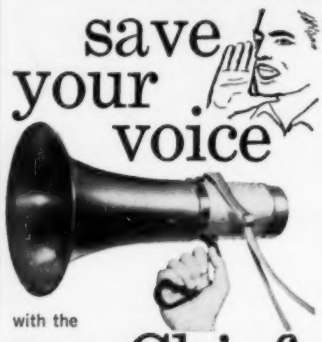

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Fish-Industry Safety

One of the major safety problems of the commercial fishing industry today is the fact that the people engaged in the business do not appreciate the hazardous nature of their occupation, according to a study on safety problems of the New England Fishing fleet being prepared by Ebasco Services Inc.

The general public and interested insurance underwriters have long recognized the many dangers attached to commercial fishing, but fishermen, boat owners and operators and others connected with the industry must be made more aware of the hazards of their business so that suggested changes to improve safety procedures and equipment may be achieved.

To focus attention on the safety program, a "Safety Day" exhibition and demonstration of safety equipment and safety devices was staged recently on a dock in the Boston harbor. Vessel owners, captains, equipment manufacturers and insurance executives were invited to view the safety devices displayed on the dock and to board the Government fishing craft, "Delaware," and inspect its safety appliances. The outstanding success of the "Safety Day" prompted the Government representative to make plans for staging similar events at other New England ports.

In its study being conducted for the Department of the Interior, Bureau of Commercial Fisheries, Ebasco is also recommending, among other things, that greater caution be taken in reeling in of nets and the handling of tools and tackle. Slipping and falling constitute a large number of the accidents and the more liberal use of non-skid material at certain deck locations and other vessel areas will be recommended.

The elements also add to the many dangers facing the fishermen, and the very nature of the fisherman's work, makes for hazardous operations while the fleet is at sea. The residue of fish cleaning, especially on a heaving deck, creates a very slippery surface, and the heavier the catch the more residue on the decks and the less time there is to clean it off and wash it overboard before the loaded net comes aboard again. Setting the net and hauling it in, with the supplementary tasks of securing the cables in the towing block, catching off the otterboards and reeling and unreeling of heavy steel cables, are among the most dangerous operations.

The study will also recommend more frequent lifeboat and fire drills, and the need for quick-opening doors in all areas exposed to the sea to enable the men to open doors swiftly, duck inside and close the door before the craft takes the next roll of the sea.

Shipping Field Safety Offices

Secretary of Labor James P. Mitchell has announced that the first of 17 new field offices to administer safety standards for the longshore and ship repair industries opened on September 1 in New York.

The new offices are established under Public Law 85-742, passed by the last Congress, which requires the Secretary of Labor to develop and administer health and safety regulations and to take other steps for the protection of stevedores and ship repairmen. Five of the 17 projected offices, those to be located in New York, Chicago, San Francisco, New Orleans, and Baltimore, will be supervisory headquarters.

Draft regulations have been drawn up by maritime safety consultants on the Department of Labor's staff. These are now the subject of public hearings throughout the country. Department consultants, acquainted with the special safety problems involved, have worked with the industry on a voluntary, cooperative basis since 1950. New personnel are taking special training before manning the field offices.

The service will be coordinated with present regional functions of the Department. As each office is opened, the Department's regional staff will announce the time, location, key personnel assignments and other pertinent information.

THE FIRE FRONT

August Losses Dip

Estimated fire losses in the United States during August amounted to $74,660,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 1.1 percent under losses of $75,491,000 reported for August 1958, and a decrease of 9.3 percent under losses of $82,334,000 for July, 1959. Losses for the first eight months of 1959 now total $717,860,000, a decrease of 2.7 percent from the first eight months of 1958, when they amounted to $737,508,000. These estimated losses include an allowance for uninsured and unreported losses.

Television Fires

Fires originating in television receivers usually involve the burning out of condensers, coils and transformers resulting in considerable acrid smoke but usually little flame, states a recent bulletin of the National Board of Fire Underwriters. They may be the result of improper repairs by persons with little or no knowledge of or training in the subject, improper installation of television antennas or inadequate ventilation of the set. Some fires have been reported to have occurred after the sets had been shut off for a period of one to two hours.

A fire in a television receiver is considered to be a Class C fire because of the presence of electricity while a set is in operation and the possibility of components being energized when a set is rendered defective by fire. The high voltage currents which may be present in the video section of the set introduce a severe life hazard which must be taken into account whenever a set is damaged by fire or accident or is handled in other than a normal way.

The second major hazard of a television set is the picture tube itself. A picture tube is constructed with a high internal vacuum and the atmospheric pressure, present at all times whether the tube is in use or not, may exert a total crushing force of nearly eight tons which is opposed by the mechanical strength of the glass tube. The tube must be designed with an irregular shape, short radius corners, and large surfaces with relatively thin sections, resulting in a product which has a factor of safety adequate for normal use but is liable to damage from fire or accident. Failure of a tube results in an implosion with violent dispersion of glass fragments or parts in random directions. However, the picture tubes are protected by a window in the front and by the back cover.

Laboratory tests and fire experience have indicated that the likelihood of implosion of a picture tube from application of an extinguishing agent for Class C fires is small. Further the tube is protected by the window in front and by the cover on the back. However, it would be the part of discretion to avoid standing directly in front of or behind a set involved in fire.

When a fire occurs in a television set, the set should be disconnected from the electrical supply by pulling the plug from the receptacle in the wall or baseboard. The set should still be considered as hazardous because condensers may not be fully discharged; therefore care should be taken so that neither your own body nor any metal part of an extinguisher is brought into contact with metal parts of the set. It is important that only extinguishers that are suitable for Class C, that is, electrical fires be used.

The set should be completely covered as soon as possible by a salvage cover, rug or heavy blanket. This will not only help smother the fire but will contain the glass if an implosion occurs. The covered set should be carried outside for final extinguishment.

Dry Chemical Protects Chemical Analysis Lab

Chemical analysis laboratories are high-potential fire hazards, since flammable liquids and gases are often present. Even though every safeguard has been taken this chemical analysis work area is still vulnerable. Careful use of Bunsen burners and hot plates are standard precautions, but guarding against the unexpected is a compact low cost automatic dry chemical fire extinguisher. If fire should occur, a fusible metal link melts and actuates the extinguisher, flooding the interior of the cubicle with 30 pounds of dry chemical.

Picture by courtesy of Ansul Chemical Company.

increased hazards— increased fire protection

New installation protects North American Aviation's research and development addition and helps guard entire varied industrial plant.

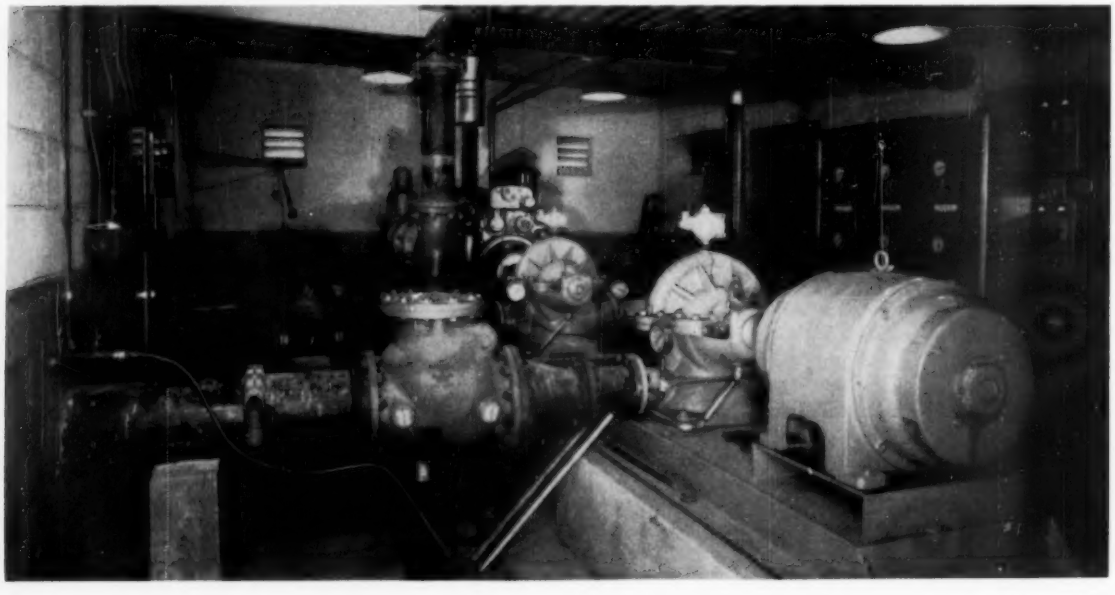
When North American Aviation, Inc., installed two pumps as protection for a 10-acre Research and Development addition to its Downey, California, plant, it designed the new pumping station to give triple service. By tying in the new pumping facilities with the existing fire protection system, the company achieved protection for the entire installation at Downey in the event of power failure and a doubling of the whole plant's fire water storage supplies as well as protection for the 5-building research center.

The extension and enlargement of the fire protection system was accomplished by the installation of two centrifugal pumps (one driven by a Diesel engine) with a combined capacity of 2500 gpm, the erection of a 300,000-gal. standpipe reservoir, and the tripling in length of the existing fire loop.

This major step-up in fire protection at Downey reflects the greatly increased hazards that exist today in many industries as a result of work with missiles, rocket engines, nuclear reactors, new and highly critical fuels. It also reflects the plant expansion resulting from this work—expansion that is going on all over the country. North American Aviation's review of the adequacy of installed fire fighting facilities in the face of these two conditions and subsequent expansion of the system has application not alone in the aircraft field but in a growing diversity of industries.

While many of North American Aviation's programs continue to revolve around airplanes, work on missiles, rockets, space vehicles, guidance and control equipment is assuming growing proportions. For example, the company has a Missile Division and an Autonetics Division located at Downey.

Among the present projects of the Missile Division is the development and production of the GAM-77 Hound Dog air-to-surface missile for the Air Force. Designed to be launched from a B-52 jet bomber against either primary ground targets or enemy air defense installations, this supersonic missile will materially extend the operational capabilities of the B-52. In yet another program, the Missile Division is building booster vehicles for the National Aeronautical and Space Administration's "Little Joe" space program. The Division has also conducted a study in support



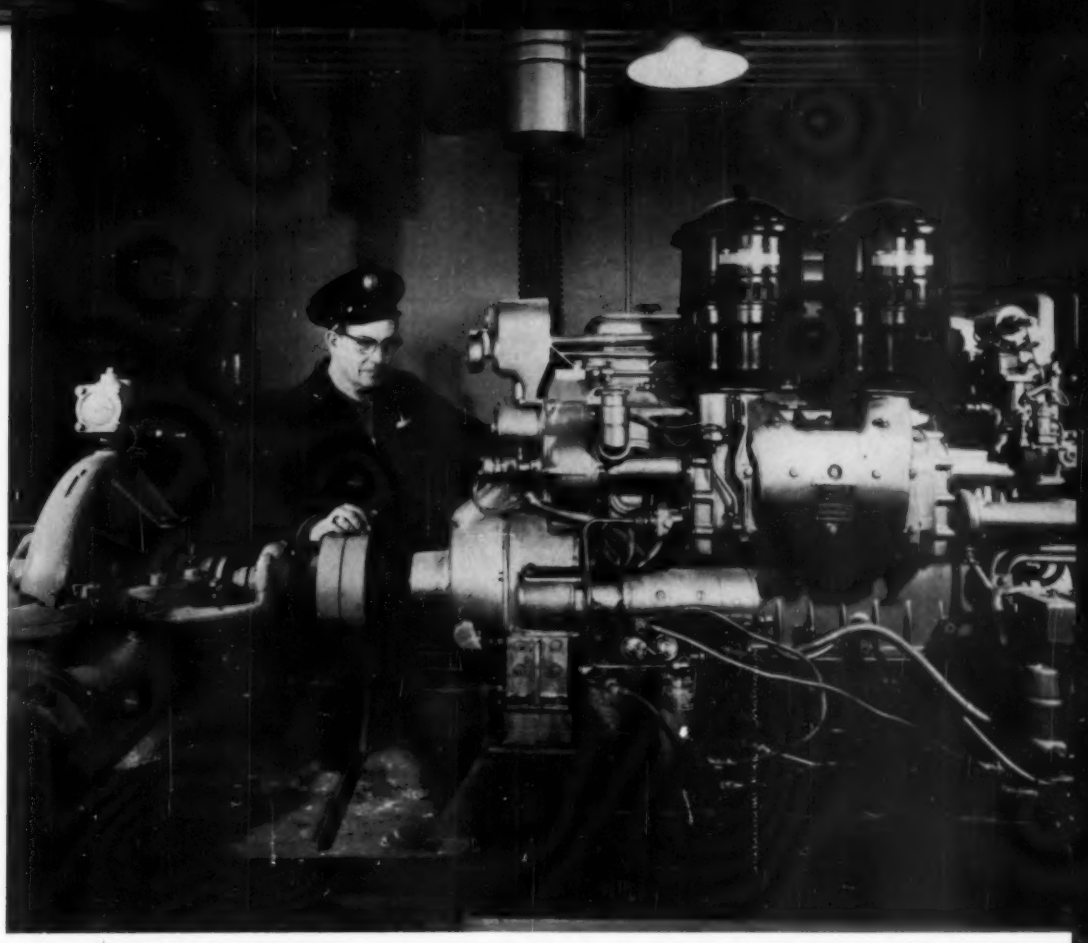


Fig. 1—Missile Division fireman looks over pump-Diesel unit, a 6 x 8-in. model with 1500 gpm capacity at 100 psig.

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Fig. 2—Both fire pumps in new pump house are centrifugals, Diesels has 1500 gpm capacity, gasoline driven unit 1000.

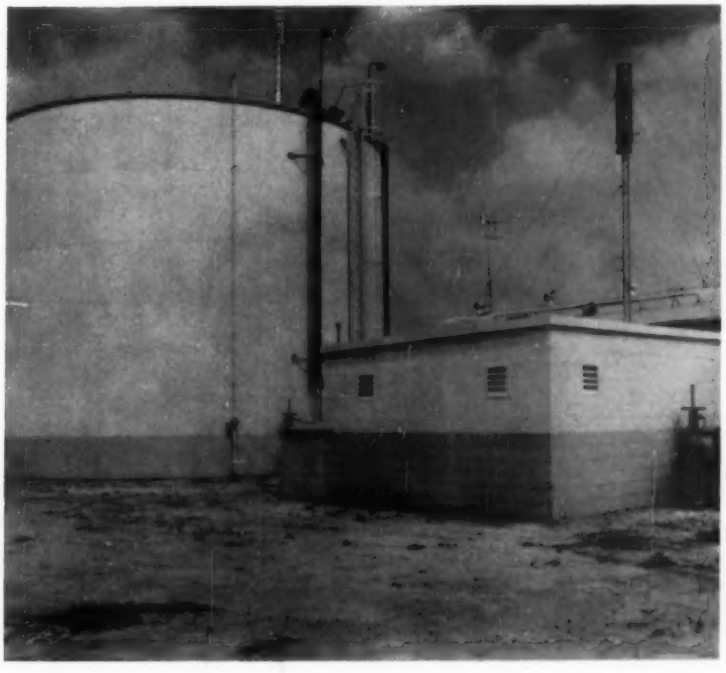

Fig. 3—This 300,000 gal. standpipe reservoir is filled from top by 6-in. pipe that takes its water from the city main.

of the Air Force's proposed Dyna-Soar booster-glide space vehicle.

Among the significant projects of Downey's Autonetics Division was the Autonetics N6A inertial autonavigators that successfully guided the atomic-powered submarines USS Nautilus and USS Skate on their historic transpolar cruises. Other contracts include the inertial guidance system for the GAM-77, guidance and control equipment for the Minuteman, navigation system for the Navy atomic-powered submarines that will be armed with Polaris missiles, and the study of guidance and control equipment for the Air Force proposed manned boost-glide vehicle, the Dyna-Soar.

New Fire Facilities

The 10-acre, 5-building addition that precipitated the building of another pumping station was the consequence of "Missile Preflight" work. The two fire pumps at the heart of the enlarged and expanded fire protection system that resulted from this plant expansion are both centrifugals capable of delivering water to the fire lines at a pressure of 100 psig. One, a 5 x 6-in. pump with a capacity of 1000 gpm, is driven by a drip-proof motor rated at 75 hp at 1750 rpm. The second, at 6 x 8-in. pump with a capacity of 1500 gpm, is driven by a Diesel. This pump-Diesel unit is the only one in the Downey plant's fire protection system and would share with a gasoline-driven 1000 gpm pump at the old station the responsibility for all manufacturing, assembly, testing and storage facilities in case of an outage of the electrical current.

While tripling the length of its fire loop and tying it in with the existing fire lines instead of simply building a loop to enclose the new facilities, North American made further provision for a greater volume of water. Instead of using 8-in. pipe as in the existing lines, 12-in. pipe was employed for all new sections of the main loop, 6- and 8-in. pipe for lateral or grid pipes.

The old 300,000-gal. underground reservoir draws water from the Downey Water Company and the new 300,000-gal. standpipe draws water from the Park Water Company which serves part of the city of Downey. At the new fire pumping station, water comes from the city main through a 6-in. pipe which runs up the side of the reservoir and fills it from the top. Each of the two pumps takes suction from one of two 12-in. suction lines extending from this standpipe reservoir to the plant and pumps it across to a 12-in. header which feeds into the main fire loop. Since old and new piping were integrated to form but a single loop, a 2-in. jockey pump installed when the first fire station was built, continues to maintain water pressure in the lines.

The fire pumps go into action only when pressure in the fire loop drops. The electric motor-driven

"This oughta be good. That's a loaded cigar Joe is smoking."

1000 gpm pump is first on the line, cutting in at a 7-lb. drop in main line water pressure. At an additional 5-lb. pressure drop, or at any time power fails when water pressure in the fire loop is down 7 or more pounds, the Diesel engine-driven 1500 gpm unit starts up, pumping water from the standpipe into the main fire line.

While the pumps start and stop automatically in relation to water pressure in the loop, the station has a full complement of instruments. As can be seen in Figure 2, an operator can tell at a glance at a single board the discharge and suction reading on both pumps, pressure on the Park Water main line and the reading on raw water to the heat exchanger. There are, of course, other pump and engine mounted gauges.

Maximum service was North American Aviation's criterion not alone in the lay-out of this addition to its fire protection system, but in its selection of equipment. For example, the centrifugal pumps have a history of long, unfailing, trouble-free operation—the kind of operation that is a must for fire fighting facilities.

Pictures by courtesy of Fairbanks, Morse & Co.

Gas Appliances and Gas Piping

A new standard for the installation of gas appliances and gas piping has been published by the National Fire Protection Association. The text of the standard, NFPA, No. 54, has been completely revised, expanded and illustrated to reflect the most recent requirements for installation of domestic and commercial gas-burning equipment. It covers such subjects as venting, clearances, air for combustion and ventilation.

Among the significant changes in the standard is inclusion for the first time of undiluted LP-Gas appliances and piping. The 1959 edition now covers installation of appliances and piping at pressures of one-half pound or less for all types of fuel gases. Piping requirements are no longer limited to within buildings as previously.

It is expected the standard will be widely used in building codes as well as an advisory guide to good practice. It was developed in cooperation with the American Gas Association and the Liquefied Petroleum Gas Association by the NFPA Sectional Committees on Liquefied Petroleum Gas and on Utility Gas, chairmanned respectively by Harold L. DeCamp of the Conference of Special Risk Underwriters and John H. Eismann. Adoption took place at the National Fire Protection Association's annual meeting. The text is the same as that submitted by the American Gas Association to the American Standards Association for approval. Copies of the pamphlet (NFPA No. 54, 110 pages, 50c per copy) are available from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Translucent corrugated plastic wall panels and skylights in nearby buildings survived an explosion at Hooker Chemical Corporation, Niagara Falls, N. Y. on July 22, 1959. In organic chemical manufacturing building shown here two of fiber-glass reinforced polyester resin-based panels (middle left and lower left) broke loose from tie bolts securing them but did not shatter. The others flexed and sprang back to position. In contrast glass windows were shattered, the corrugated asbestos board roof was broken by flying debris, sheet metal siding was bowed.

Plastic Panels Withstand Explosion

Maintenance men at Hooker Chemical Corporation's Niagara Falls, N. Y. plant recently had occasion to remember Shakespeare's adage in Henry VI, "Ill blows the wind that profits nobody." A severe explosion on July 22, 1959, tagged at $200,000 as a preliminary estimate, leveled a 50 x 100 foot single-story concrete block building with a concrete slab roof housing several organic chemical manufacturing processes. After the subsequent three-alarm fire had been extinguished, maintenance engineers surveyed damage to other buildings in the area.

An astonishing number of plain glass and wire-reinforced glass windows and skylights were shattered and fell in fragments, glass brick was cracked and blown out in some instances, and corrugated asbestos board siding and roofing was broken into pieces. This damage extended as far as several hundred yards from the blast. In many cases breakage even occurred on the sides and skylights of buildings opposite from the direction of the explosion because of back pressure.

Sharp fragments of flying glass, pieces of broken concrete, and other debris were hurled by the explosion, of course; but also shattered glass in other buildings in that general section of the plant presented an added hazard to personnel located at a considerable distance from the blast itself.

Panels Unbroken

One notable exception to the damage was immediately apparent, however. In several nearby buildings, when replacement had been necessary on earlier occasions due to breakage, corrosion of sash, etc., Hooker had supplanted glass windows and various other means of daylighting with translucent fiberglass-reinforced polyester resin corrugated panels. The panels are extremely corrosion-resistant, almost unbreakable, and are maintenance-free. When the explosion occurred, in every instance where they were used nearby, these pale green semi-flexible panels either flexed and sprang back to position or else were forced loose from the bolts securing them and dropped to the ground as intact panels. Because they were shatterproof and there were no sharp cutting edges to cause injury, danger to personnel was virtually nil.

Hooker engineers had specified three years earlier that the company's own polyester resin be incorporated in the panels used for its industrial buildings because panels containing their ingredients do not support combustion in contrast to many polyester-fiberglass panels on the market today. Since panels using this particular type of polyester resin carry the Underwriters' label and the Factory Mutual Insurance seal of approval for fire resistance, they are recommended for use in industrial build-

ings or in any other location where fire is a hazard. The panels which survived the blast can be re-used in those instances where they were blown out.

The unfortunate explosive blast doubly confirms the validity of Hooker's three-year-old policy that these panels be used for windows and skylights in all of its future new industrial buildings and for all daylighting installations other than minor single small pane replacements. Hooker recommends that safety supervisors, design and maintenance engineers, and plant managers in other companies institute a similar policy which minimizes injuries to personnel from flying glass.

To obtain a source for further information about these approved panels, write to the Editor.

New York Fire Prevention Measures

Fire wardens in factories and constant vigilance in schools are effective answers to tragic life-taking fires, according to New York City Fire Commissioner Edward F. Cavanaugh, Jr. Speaking at the annual meeting of the National Fire Protection Association, the Commissioner credited in-the-field inspections by fire department units with reversing a dangerously increasing trend in fire outbreaks in New York City.

Despite the New York Fire Department strength of 12,000 men, "it could not possibly clean up all the fire traps in the city," he said.

One answer has been organization of a fire warden system in high-hazard garment and millinery plants. Employees are being trained by the fire department to serve in the capacity of firemen in their own plants. More than 6500 factories now have this protection, according to Commissioner Cavanaugh.

The Commissioner described his department's reaction to the Chicago school fire of last December.

"We made a sweeping and unprecedented inspection of all New York City schools, starting the day following the disaster. In approximately three weeks we inspected 2,004 schools and closed 36 of them because of fire hazards."

Starting this year, the New York City fire department is making two thorough inspections of all schools annually in spring and fall. Battalion chiefs in addition make monthly spot checks.

Another "killer" is due to be legislated out of existence in New York City this fall, the Commissioner said, when the final section of law prohibiting fuel-burning space heaters will apply to multiple dwellings with less than ten apartments. The ban already applies to dwellings, apartments, hotels, rooming houses and non-residential properties.

Inspections, now being made at a rate of more than 1,200,000 annually in New York City, are the heart of the department's fire prevention effort, Commissioner Cavanaugh said.

"And fire prevention rather than firefighting should be the first order of business for fire departments," he declared. "The great majority of fires are preventable, and inspection of buildings is a most potent factor in preventing them."

Fire Doors and Windows

A new standard for the installation of fire doors and windows has been published by the National Fire Protection Association. The standard, NFPA No. 80, is the result of more than three years of development work by the NFPA Committee on Fire Doors and Windows, a representative group under the chairmanship of W. K. Estep of the Middle Department Association of Fire Underwriters, Pittsburgh, Pa.

The text, which is a complete revision of the previous standard on this subject, classifies doors and windows in terms of hours of resistance to standard test fires. It is expected it will be widely used in building codes as well as an advisory guide to good practice. The pamphlet is fully illustrated with drawings showing standard methods of installation of fire doors, hardware, automatic closing devices and other details. Copies (NFPA No. 80, 72 pages, 75c per copy) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Fire Fighting Techniques

Fast and effective handling of industrial and in-plant fires was demonstrated recently at Binks Manufacturing Company's Franklin Park, Illinois plant. The demonstration featured the latest industrial type fire fighting equipment.

Fires were set to simulate typical fires that are encountered in industry, including cleaning solvent tank fires, flammable storage room fires, wood fires, oil rag fires, and LP gas fires. Demonstrations included extinguishing fires with pressurized water, carbon dioxide, carbon tetrachloride, and dry chemical (sodium bicarbonate) extinguishers. The effectiveness of the dry chemical line of extinguishers was graphically shown. The demonstration was sponsored by Binks as a courtesy gesture to industries in Franklin Park and the surrounding areas.

Picture by courtesy of Walter Kidde Co.

Approved Equipment List

The 1959 edition of "Approved Equipment for Industrial Fire Protection," describing and listing the manufacturers of fire equipment that has been tested and approved by Factory Mutual Engineering Division, is now available. The equipment includes two general classes of devices: 1. Those used for the control and extinguishment of fires and the prevention of explosions; and 2. Those that in themselves would present serious fire or explosion hazards if not properly safeguarded. Therefore in addition to listing fire extinguishers, sprinkler and other extinguishing systems, fire doors and windows, alarm systems, flammable liquid handling equipment, and other protective equipment, the manual also covers fire-safe acetylene equipment, hazardous gas equipment, industrial trucks, safety solvents, combustion safeguards, etc.

The manual is extremely helpful in its concise descriptions of the various types of products which have been tested for their ability and reliability in fire prevention and control. Copies of the equipment list are available for $3.00 from Factory Mutual Engineering Div., P. O. Box 510, Norwood, Mass.

Lighting Book

A new book, "Primer of Lamps and Lighting" by Willard Allphin, who is a graduate of M. I. T. and who has been for the past 16 years with Sylvania Electric Products, has been published by Chilton Co. Mr. Allphin is currently working on projects connected with Illumination Research. His book gives enough basic information and material on lighting to enable the reader to deal with lamps and lighting layouts. In simple, down to earth style, the author makes lighting understandable to the practical man, electrical contractor, building maintenance superintendent, and electrical foreman. All pertinent questions are answered in helpful terminology. Practicing architects, too, will find a great deal of help in the correct uses of lighting and also up-to-date information on currently available lamps.

Electrical engineers will appreciate the information on fluorescent lamps and circuits. An important feature of the book is the helpful calculation slide rule inserted in a back pocket of the cover, which makes the mathematics of the Lumen formula easy to apply. The 224-page book is available for $10 from the Book Div., Chilton Co., 56th & Chestnut Sts.; Philadelphia 39, Pa.

BRI Paint Volume

Affording the building industry a chance to catch up with the rapid and drastic changes in paints and coatings during the past 10 years, the newest book published by the Building Research Institute covers all of the latest information on the paints, methods of application, causes of deterioration, and techniques for maintenance.

"Field Applied Paints and Coatings," NAS Publication 653, contains the complete report of the BRI conference on this subject, held last December. There are well illustrated presentations by 18 of the nation's top authorities on paints, coatings and their use in

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buildings, plus the transcript of five panel discussions in which builders, architects, engineers and maintenance men posed their own questions for the experts to answer.

Special consideration is given to paints for industrial use, including high humidity, high temperature and severe chemical exposures. There is also a section on color, describing the functional use of color, and the effect of color on the performance of the paint. And last, the future of paints and coatings . . . what we want and need for tomorrow . . . is presented from the standpoint of the building industry and of the paints and coatings industry.

Copies of "Field Applied Paints and Coatings," a 150-page, illustrated book, may be ordered at $5.00 each from Building Research Institute, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C. BRI, a unit of the Division of Engineering and Industrial Research of the Academy's National Research Council, publications are based on the proceedings of carefully planned, scientifically unbiased conferences to correlate research for the building industry and its related professions of architecture and engineering.

American Standards '59 Index Available

The 1959 Price List and Index of American Standards, is available free from the American Standards Association, Dept. PR 66, 70 East 45th Street, New York 17, N. Y. The publication lists the more than 1800 American Standards approved to date by the American Standards Association. A standard is approved as an American Standard only if it is supported by a consensus of all national groups substantially concerned with its scope and provisions.

The fields covered by American Standards include: automotive, chemical, civil engineering and construction, commercial standards; drawings, symbols and abbreviations; electrical engineering, ferrous materials and metallurgy, materials handling, mechanical engineering, mining, nonferrous materials and metallurgy, nuclear, office equipment and supplies, photography and motion pictures, pulp and paper industry, rubber, textile industry, wood industry, industrial safety, highway safety, and consumer goods.

Also included in the publication are the international standards recommendations published by the International Organization for Standardization and the International Electrotechnical Commission. These publications are also available from the American Standards Association.

DeVilbiss Manual

The 1959–60 edition of the DeVilbiss Service manual of over 400 pages containing parts lists, general information on installation, operation and maintenance and other service information is now available from The DeVilbiss Company, Toledo 1, Ohio.

The new manual provides up-to-date literature and has been compiled in line with a policy of issuing a new volume whenever sufficient changes accumulate to make it necessary. The manual is priced at $2.50, net, F.O.B. Toledo; $2.80 net, F.O.B. West Coast shipping points.

Armored Cable Safety

Standards for Safety for Armored Cable, published by Underwriters' Laboratories, Inc., has been approved as American Standard C33.9–1959 by the American Standards Association. The requirements cover multiple-conductor armored cables for use in accordance with the American Standard National Electrical Code, C1–1956, in wiring systems operating at a potential of 600 volts or less and at a temperature of 60 degrees C or 75 degrees C, according to the temperature rating of the insulated conductors.

The publication covers requirements for conductors, fillers, lead coverings, and armor, and describes in detail the testing apparatus and procedures the cable must with-

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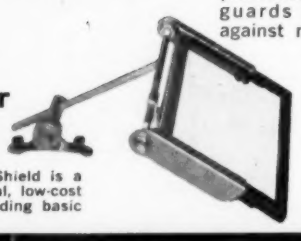

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stand to meet the standards. This is the seventh edition of the standard, UL 4, and is dated March, 1959. It supersedes the previous edition, dated January, 1957.

A standard is approved as an American Standard only if it is accepted by a consensus of national groups substantially concerned with its scope and provisions. Such groups, whether members of the American Standards Association or not, have an inherent right under the Association's constitution to have their views fully considered in the development and approval of an American Standard.

Underwriter's Laboratories "Standards for Safety for Armored Cable," ASA C33.9–1959, is available from American Standards Association, Dept. PR 66, 70 East 45th St., New York 17. The price is 75 cents a copy.

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Building Exits Code

A new 1959 edition of the Building Exits Code, just published by the National Fire Protection Association, includes many new features of life safety from fire. Developed by the NFPA Committee on Safety to Life, it was adopted by the Association at its annual meeting in Atlantic City.

The Building Exits Code concerns itself wholly with safeguarding life from fire and panic, and deals not only with exits but many related features such as fire drills, exit lighting, signs and similar subjects. The National Fire Protection Association has no record of loss of life by panic or by trapping in a burning building in any case where the requirements of the Building Exits Code were met.

New features in the sixteenth (1959) edition include complete new treatment of nursing homes, both new and existing, a liberalization of requirements on interior finish to permit the use of heavy timber construction in places of assembly, stores and the like, and many other revisions. The Building Exits Code, unlike building codes, provides for life safety from fire in private dwellings. A complete new section on this subject deals with exit arrangements and specifies that at least one window in every bedroom shall be large enough to climb out, and within 3½ feet of the floor.

The Building Exits Code is purely advisory as far as the National Fire Protection Association is concerned, but is widely used as a basis of law and legal regulation in the interest of public safety. Copies of the new edition (256 pages, 4¾ x 7¼ inches, illustrated, $1.50) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

NFPA Codes Revised

New and revised editions of three fire safety standards relating to flammable liquids have just been published by the National Fire Protection Association. The 1959 edition of the Flammable Liquids Code (NFPA No. 30) contains a number of significant changes. This code is the recognized guide to safe practice in the storage and handling of gasoline and other flammable liquids, and serves as a basis of law or fire marshals' regulations in a large part of the United States.

A major 1959 change is to include chemical plants and distilleries under requirements relating to refineries and other plants storing and handling crude petroleum. In addition, a new concept of tanks has been included in accordance with their pressures. Among other changes is a revision of material dealing with service stations.

The Flammable Liquids Code has been rewritten and revised periodically since its first issuance in 1913, in order to keep it up to date. The 1959 revisions deal with the various details of good practice all in recognition of the fact that gasoline and other flammable liquids are essential to our modern civilization. The Code's measures for fire safety are aimed to secure the desired results without imposing undue inconvenience or expense upon the users of these products.

The new edition of the Standard for Storage of Flammable Liquids on Farms (NFPA No. 395) is a complete revision of the 1947 ver-

sion. In addition to updated materials, it now contains provisions for the storage of flammable liquids at isolated construction projects.

The 1959 edition of the Regulatory Standard for Tank Vehicles for Flammable Liquids (NFPA No. 385) covers a number of new features. Among them are transportation of liquids at high temperatures which may affect the strength of the tank and the use of stainless steel and new aluminum alloy tanks.

This standard has been widely used as a basis for state regulation of gasoline and other tank trucks. The 1959 edition was developed by the Sectional Committee on Transportation of Flammable Liquids, with J. H. Myers of the Atlantic Refining Co., Philadelphia, as chairman.

NFPA Standard No. 30 (62 pages, 60¢ per copy), NFPA Standard No. 395 (8 pages, 35¢ per copy), and NFPA Standard No. 385 (22 pages, 50¢ per copy) may be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Lightning Protection Code Revision

A 1959 revision of the Code for Protection Against Lightning has just been issued by the National Fire Protection Association. The code is the nationally accepted guide to proper installation of lightning rods and other lightning protection. Compliance with the code largely eliminates deaths and property damage from lightning, according to the NFPA Committee on Lightning Protection which developed the material.

The code, originally formulated in 1904, has been revised at frequent intervals to keep it in line with the best current thinking in the field. This year's revisions deal principally with concealed installations, floating roof tanks, grounding of tanks and pressure storage of flammable liquids and gases.

Copies of the 1959 edition (NFPA No. 78, 48 pages, 50¢ per copy) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

Fire Extinguisher Standard Ready

The 1959 edition of the Standard on Portable Fire Extinguishers (NFPA No. 10) has been published by the National Fire Protection Association.

Widely used as a guide to proper practices, this standard deals with installation and maintenance features necessary to proper performance, and specifies minimum sizes of extinguishers of various types which are considered capable of satisfactory operation on a fire.

Among the significant changes in the 1959 edition is the new requirement that extinguishing devices shall have at least one unit capacity. This rules out the one-quart carbon tetrachloride extinguisher of one-half unit capacity, except for special uses.

Changes in the standard were recommended by the NFPA Committee on Portable Fire Extinguishers, chairmanned by Deputy Chief Raymond M. Hill of the Los Angeles Fire Department, and were adopted at the recent annual meeting of the association. Copies of the pamphlet (NFPA No. 10, 78 pages, 60¢ per copy) are available from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Soldering Manual

The American Welding Society recently announced the publication of the first manual on soldering. Containing 176 pages, 81 illustrations and 34 tables, the book completely covers all phases of soldering, combining the theoretical with the practical.

The twenty-one chapters deal with the following subjects: principles of soldering; solders; fluxes; joint design; precleaning and surface preparation; equipment, processes and procedures; flux residue treatment; inspection and testing; copper and copper alloys; steel; coated steels; stainless steels; nickel and high-nickel alloys; lead and lead alloys; aluminum and aluminum alloys; magnesium and magnesium alloys; tin; cast irons; precious metal coatings; printed circuits; and safety.

The manual is equally useful to the amateur and the professional. The practical man will find the latest techniques described and clear indications given when to solder, what to solder and how to solder. The engineer who wants to know the principles involved in setting up sound soldering schedules will find the information in detail. All phases of soldering are described including the new techniques developed for miniaturization.

Chemical composition of hundreds of solders are given, together with flux formulations for the various metals. Copies may be had from the American Welding Society, Department T, 33 West 39th Street, New York 18, N. Y., at a list price of $5.00.

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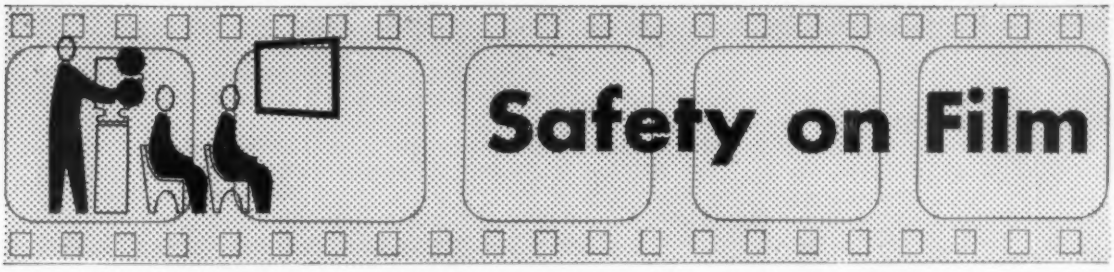

Fire Prevention Films

Two new fire prevention films, produced by United World Films for the U. S. Navy, are now available for direct purchase by the industrial and fire protection public.

"Know Your Hazards" is a full-color, 18 minute film that describes the fire characteristics of various materials used at work or at home when they are subjected to such conditions as are likely to start a blaze. The potential dangers too often present when these flammable materials are used are emphasized.

"The Nature of Fire" lasts 13 minutes and also is in full color. It shows by animation and laboratory-type demonstrations that fire has three essential elements: oxygen, high temperature, and fuel. The point is stressed that any fire, regardless of size, can be controlled by the elimination of any one of these elements.

For prices and further details, write to: Leo B. Guelpa, Jr., Mgr. Education Dept., United World Films, Inc., 1445 Park Ave., New York 29, N. Y.

Industrial Films

The 1959 edition of the Industrial Management Society film rental catalog lists 77 films describing American work simplification and industrial engineering training projects produced in leading American companies.

The folder explains the terms by which the 16mm films are available for rental. These films, many in color and sound, all have won awards in the annual Methods Improvement Contest sponsored by the Society. The films are approximately 10 to 15 minutes long in running time and picture "before" and "after" phases of training methods and work simplification projects in both plant and office operations.

Copies of the brochure are available by writing the Industrial Management Society, 330 South Wells Street, Chicago 6, Illinois. There is no charge for the booklet.

Photograph taken during the production of new industrial eye safety film, "It's Up to You." Left to right: Hugh Avery, safety director, Leslie Company, Lyndhurst, New Jersey; Leo Trachtenberg, producer-director, and Al Socolow, of Harvest Films; Mrs. Loretta Smith, R.N., plant nurse, Emil Timpanaro, "injured employee," both of the Leslie Company; and Walter Leyh of the Lyndhurst Police First Aid Corps.

New Eye Safety Film

A hard-hitting industrial eye-safety film has just been completed. Entitled "It's Up to You," it has been produced with the full cooperation of the National Society for the Prevention of Blindness. James O'Neil, director of Industrial Service of the National Society, and head of the Wise Owl Club, served as technical advisor.

The 16 mm sound film is approximately 11 minutes long and will be available for purchase or rental in color or black and white. According to the producer, Harvest Films, prints are available now for national distribution.

According to Mr. O'Neil, the film stresses the use of proper safety eyewear as the foundation of any successful program to prevent loss of sight due to industrial eye accidents. He pointed out that there are many firms which supply safety eyewear to their employees but do not require its use.

"It's Up to You" shows many typical work situations which could produce eye injuries and explains the various types of safety eyewear available for specific working conditions. Included in the film is a narrative case history of an eye injury that occurred while a worker was not wearing his safety glasses. In a brief dramatic sequence, the surgeon is shown removing a metal fragment from the victim's eye.

The film will be distributed by Harvest Films, 90 Riverside Drive, New York, New York, and by the National Society for the Prevention of Blindness, 1790 Broadway, New York 19, New York.

Harry P. Dalzell, Chief of the Administrative Services Division, National Bureau of Standards, has been awarded the U. S. Department of Commerce Silver Medal for Exceptional Service, for "initiating and promoting an excellent safety program at the National Bureau of Standards which resulted in a steady decrease in accidents." Among the responsibilities which Mr. Dalzell carries out are those of the Bureau's Safety Officer, Security Officer, and Emergency Planning Officer.

• • •

Safe working practices at American Can Company's Halethorpe plant have earned three top safety awards for the paper milk container factory's nearly 300 employees, George F. Lancashire, manager, has reported. Two awards from the National Safety Council were in recognition of the employees' completion of one million man hours worked without a disabling injury accident, and for achieving the same accident-free record during the year 1958. The million-man-hour award covers approximately a two-year period. The Baltimore Safety Council also cited Canco as third place winner in a competition among area factories of its size for the greatest improvement in safety records during 1958.

• • •

The Philadelphia Quartermaster Depot has been given the Philadelphia Chamber of Commerce's coveted Million Man-Hour Award in recognition of 3,100,000 man-hours worked without a disabling injury, covering the period from February to July of this year. Major General Webster Anderson, USA, Depot Commander, accepted the award on behalf of the Depot's 5,000 employees. The award has been earned by only five out of the 10,000 incorporated businesses in the Philadelphia area, in any one given year.

In addition, Walter Steppe has been given a $250 Superior Performance award for outstanding work as Safety Director at the Philadelphia Quartermaster Depot. In presenting the award, General Anderson, cited Mr. Steppe for his success in improving safety conditions there, and noted that since he has been employed at the Depot it has been given three Department of Defense Safety Awards of Merit, two Army Quartermaster General Safety Awards and the Philadelphia Chamber of Commerce Safety Award.

Mr. Steppe has been employed at the Depot since 1950. Before that time, he served as a consulting safety and fire prevention engineer. He is a member of the American Society of Safety Engineers.

• • •

A special award for a safety record on power intake tunnels of the Oahe Dam project in South Dakota was recently presented to representatives of the Morrison-Knudsen-Kiewit-Johnson joint venture by the insurance carrier, Employers Mutuals of Wausau. A perfect safety record for 373,379 consecutive man-hours—just six days short of a perfect year—brought the award. Accident frequency rate for the total year was 2.6—compared to the three year rate for tunneling of 37.09.

• • •

Safest place to work in the Navy appears to be the Bureau of Supplies and Accounts, which recently won the Secretary of the Navy Safety award for the eleventh time in twelve years. The Bureau award for the calendar year 1958 was based on achievement not only of an accident frequency rate of less than 2.5 but a severity rate and a motor vehicle accident rate which were lower than the Navy-wide average rates. The Bureau had an accident severity rate of 181 days of disability per million man-hours of work compared to an all-Navy average of 286. Motor vehicle accident rate was only .66 per 100,000 miles as compared with the all-Navy 1.17.

• • •

Employees at Alpha Portland Cement Company's Jamesville, N. Y. plant received three safety awards recently. Two awards, from the Portland Cement Association, were the Safety Trophy award for an accident-free year (1958) and the 1000 Day Club award, presented for a record of over 1000 consecutive days with no disabling injuries. The third award was a

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Certificate of Commendation from the National Safety Council for operating over 400,000 man-hours without a disabling injury.

• • •

Sixteen drivers of Stanley Works vehicles who have completed 99 years at their work without a single accident were given recognition recently. Pins indicating the nature of their achievement were presented at ceremonies. Frank Bourgard, Superintendent of the Safety Engineering Department of the Aetna Casualty & Surety Company, made the presentations to eleven drivers with 68 safe years, at the main plant. At Stanley Tools Mr. Bourgard also presented the pins to five men with 31 years of safety.

• • •

A world safety record for the drop forging industry has been established by employees of Ford Motor Company's Canton, O., forge plant. The world record is the sixth set by Ford facilities since 1955. The Canton plant's approximately 1,500 employees worked more than 3,100,000 man-hours without a disabling injury from March 11, 1958, to last June 30. The long safety streak remains intact. The former drop forging world safety record was held by the Clark Equipment Company's Buchanan, Mich., plant.

• • •

Employees of Universal Oil Products Company's McCook, Ill., pilot plant division and service lab employees recently completed over 1,000,000 man-hours without a disabling accident. According to Glenn F. Stednitz, safety director of the pilot plant division, there has not been a lost-time accident at the pilot plant facilities since December, 1956.

• • •

The outstanding safety records of Firestone plants in India, Argentina and England have been recognized by the National Safety Council and suitable awards have been presented local plant managements.

The Firestone Tyre & Rubber Company, Ltd., of Bombay, India, received the Award of Honor, for completing 6,679,236 injury-free man-hours. The plant's employees worked 23 months without a lost-time injury.

Under the N. S. C.'s Award Plan the Buenos Aires, Argentina, textile plant received an Award of Merit for its outstanding safety performance in 1958. The plant had an accident frequency rate of 0.0 with no lost-time accidents during the year. This represented a 100 percent improvement over the previous three-year average. Employees at the textile plant worked more than 1,580,000 man-hours without an injury.

The Brentford, England, plant also received an Award of Merit on the basis of a 68 percent improvement in the plant's accident frequency rate for 1958 over a previous three-year average. Employees achieved a frequency rate of 0.57 last year as compared with the rubber industry average of 2.1.

industrial hygiene

Benefits of Industrial Health

More than 300 Du Pont employees got an extra lease on life during the past five years because their health is better than average, according to a study published recently in "Better Living," the company's employee magazine. A medical survey disclosed that the death rate over a five-year period for Du Pont employees is lower than national averages, despite the fact that the 85,000 men and women in the country form a cross section of the nation's population. The result is that 322 of them who would have died, if the average held, are now alive, healthy, and working productively.

Expected deaths among company employees, based on national averages, were 1,740, but the actual total for the five years was only 1,418. The trend held true through the full range of illness, from the major killers, such as heart disease, to the minor, such as appendicitis.

A major factor in this achievement is Du Pont's Medical Division "and its insistent emphasis on preventive medicine," according to "Better Living." "Rather than merely repair damage, Du Pont embarked on a program of medical research and activity to prevent disease."

The scope of this program over its 40 years of operation is indicated by the count of some of its activities: more than five million physical examinations, more than two million x-ray examinations, more than four million blood samples analyzed.

"Thousands of unsuspected and previously undetected ailments were discovered, allowing them to be treated and cured long before they got out of hand," the story said.

The program goes well beyond the function of examining and advising employees. The Medical Division also carries out extensive research in medicine, and industrial hygiene. Two areas of intensive work in recent years have been in psychiatric help to employees and a program to combat alcoholism. It also conducts studies to make sure the job is suited to the employee's health and does other research to improve working conditions.

A recent development is the study of medical statistics to discover whether apparently unrelated facts show any patterns of health or illness. It was from this work that the study in "Better Living" emerged.

Illustrating the success of the medical program, the study found that in 9,000 special examinations on a group of employees who voluntarily submitted for the cancer detection tests over 11 years, 55 previously undetected cancers were discovered. All 55 employees underwent successful surgery, and 54 of them are alive and healthy today.

The Value of Preventive Medicine

Results of inoculations for "Asian flu" in 1957 is another example of the value of preventive medicine. A 30-plant survey shows that 33,000 employees were offered free vaccinations, but only 19,000 took them. Incidence of "flu" was 77 percent higher in the unvaccinated group. If the unvaccinated employees had all taken this precaution, they would have had 8,381 fewer days sick in bed. The study calculated that if nobody had been vaccinated, 18,000 additional employees would have been hit by the "flu."

Heart disease, the major killer at Du Pont and in the nation, is being studied intensively by the Medical Division, particularly in its effects on Du Pont employees. According to Dr. C. A. D'Alonzo, assistant director of the division, much has already been learned about it and some preventive steps are already known to help prevent it.

"If past performance against other medical killers, such as polio, pneumonia, or TB is any indication, we should do well against heart disease, too," Dr. D'Alonzo said.

It has been learned that many types of heart diseases are detectable earlier than heretofore believed, he said, and added, "We now know that, with a few exceptions, heart disease is related to, and is aggravated by, many factors and rarely can be pinned down to one thing." Among these he listed heredity, the sex of the individual, hypertension, overweight, age, family size, and body chemistry.

SAFE FOR BOXCAR OPERATIONS—This 7000 pound LPG power unit on a fork truck at Gary, Ind., steel plant was fitted with catalytic exhaust purifiers to eliminate potential exhaust fume concentration problem in boxcar loadings.

Eliminate Truck Fumes

Extensive user tests of catalytic exhaust mufflers, showing more than 98 percent clean-up of troublesome carbon monoxide fumes, have led to use of 17 of these engine attachments by a major steel company plant in fork truck fleet conversion to liquefied petroleum gas.

When United States Steel's Gary Sheet & Tin Mill, at Gary, Ind., began the wholesale switch of its industrial truck fleet to LPG, a potential gas problem was anticipated from exhaust fumes if extensive truck operations were conducted inside boxcars.

The fume problem was anticipated despite the widely held belief that LP-fueled trucks are fumeless. Though better behaved, the LPG engines still produce from 50 to 75 percent of the exhaust fumes of conventional gasoline-powered trucks.

Catalytic exhaust purifiers were immediately fitted on two of the converted trucks, and the maker of the devices was asked to cooperate with the corporation's industrial hygiene department in a program to evaluate their performance.

Tests satisfied Gary Sheet and Tin Mill personnel that, with a catalytic purifier and properly adjusted LPG engine to assure adequate air-to-fuel ratio, carbon monoxide can be reduced virtually to zero.

The units are now accepted for use on LPG trucks for work in confined areas.

Specific test data gathered shows:

- **A 98 percent reduction in CO** in the exhaust—Purifiers reduced CO concentrations in the exhaust by this amount, throughout the entire

(Continued on the next page)

CHARTS I & II—Comparative test results showing levels of exhaust gas contaminants in LPG fork truck units before and after installation of catalytic exhaust purifiers. Power units tested, and results shown below, are for 6,000- and for 10,000-pound vehicles. Symbols 1_1, S_2, and S_3 represent the sample points, at the manifold of the engine, directly after dilution at the venturi, and directly from the outlet of the catalytic exhaust purifier.

TRUCK A.

	IDLE			Gov. Speed (Load)		
	Before Cat. S_1	After Venturi S_2	After Cat. S_3	Before Cat. S_1	After Venturi S_2	After Cat. S_3
Speed (RPM)		900			1400	
Gas Analysis by Orsat						
CO_2 % by volume	7.0	3.8	9.8	10.2	8.8	9.8
O_2 " " "	0.8	8.2	5.2	1.6	4.4	4.2
CO " " "	8.6	5.0	0.0	2.2	1.4	0.0
MSA CO % by volume			0.005			0.02
Air/Fuel ratio by weight	11.3:1			13.7:1		
% CO Reduction by Orsat		100%			100%	
% CO Reduction by MSA		99.9%			98.6%	
Aldehydes (as formaldehyde) PPM	18		0.7	16		0.5
% Aldehyde Reduction		96.1%			96.9%	

TRUCK B.

	IDLE			Gov. Speed (Load)		
	Before Cat. S_1	After Cat. S_3		Before Cat. S_1		After Cat. S_3
Speed (RPM)		900			1400	
Gas Analysis by Orsat						
CO_2 % by volume	9.8	11.0		12.0		8.8
O_2 " " "	2.0	3.0		0.6		6.6
CO " " "	4.0	0.0		1.6		0.0
MSA CO % by volume		0.005				0.02
Air/Fuel ratio by weight	13.6:1			14.0:1		
% CO Reduction by Orsat		100%			100%	
% CO Reduction by MSA		99.9%			98.7%	
Aldehydes (as formaldehyde) PPM	16	0.04		15		0.3
Aldehydes % Reduction		99.7%			98%	

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One other factor—reduction in hydrocarbons—could not be checked in field-testing. Earlier evaluations of hydrocarbon content in exhaust gases from LPG engines, made with infrared analysis equipment, show a 90 percent reduction achieved by use of catalytic exhaust purifiers.

Gary Sheet & Tube's materials handling operations were changed over to the LPG's for economic considerations. Trucks work around the clock in loading and unloading boxcars and in warehhouse and mill handling of steel products. Maintenance and standby costs prompted the decision to convert the vehicles, which range from 4000 to 30,000 pounds in capacity.

Truck Uses

The catalytically-purified fork trucks—a total of 17 in all—are used for loading and unloading tin plate, sheet steel and spelter (zinc) for galvanizing. These are carried between high-roofed, well-ventilated warehouses and the railroad boxcars, the spelter being unloaded from the cars and brought in, the steel products moving out.

Vehicles selected for the test program were a 7000-pound fork truck and a 10,000-pound unit.

Tests of comparative levels of contaminants in exhaust gases both before and after installation of the purifiers were made, using an Orsat gas field analyzer which meters exactly 100 cubic centimeters of sample gas and then washes the gas in three different absorbers. Quantities of the absorbed elements (O_2, CO_2, and CO) are registered as percentages of the original 100 cubic centimeters sample.

A squeeze bulb sampler was employed to measure CO concentrations smaller than .1 percent by volume, since the Orsat could not measure such small quantities.

Air/fuel ratios were measured with a standard air/fuel meter.

Data recorded for the two trucks, at idle and at governed speed, are shown in Charts I and II.

Catalytic exhaust purifiers, installed in place of regular acoustical mufflers on combustion engine equipment, operate by channeling the hot exhaust gases through a catalytic agent. This promotes an oxidation reaction which, occurring at relatively low temperatures, changes the incompletely burned contaminants in the exhaust gases to harmless carbon dioxide and water vapor.

More than 6000 catalytic exhaust purifiers are now at work on industrial vehicles used in confined-area operations. Units are made for white, non-leaded gas and LPG; for leaded gas; and for Diesel equipment.

Catalytic elements in the purifiers are designed for an efficient operating life of from 2000 to 2500 hours. They can then be replaced on an economical exchange basis.

Pictures by courtesy of Oxy-Catalyst, Inc.

Vinyl Acetate Data Sheet

Safe handling techniques for industrial users of vinyl acetate, a colorless flammable liquid, are described in a new chemical safety data booklet published by the Manufacturing Chemists' Association.

Sections of the MCA's new safety data sheet cover the physical properties of vinyl acetate, potential hazards, engineering control, employee safety, fire fighting, labeling, transportation, handling, storage and first aid.

The more than 85,000 tons of vinyl acetate produced annually in the U. S. are used in the formulation of such end products as adhesives, coatings, plastics, rubber, textiles, glass and leather.

Copies of SD-75, Vinyl Acetate, may be obtained at 30 cents each from the Manufacturing Chemists' Association, Inc., 1825 Connecticut Avenue, N. W., Washington 9, D. C.

New Research Facilities

Pittsburgh's 46-year-old Mellon Institute, oldest nonprofit scientific research institution of its kind in the nation, officially opened the newest major addition to this district's already heavily-endowed research arsenal recently.

Known as the Bushy Run Laboratories of Mellon Institute, the new installation is 25 miles east of the steel city's Golden Triangle. The research facilities just opened consist of the Chemical Hygiene Building and the Radiation Research Building, the first two in a series of proposed special buildings, each devoted to a particular field of scientific investigation. The project represents an expansion of Mellon's activities and supplements the facilities of the Institute's main building in Pittsburgh.

With 30,000 square feet available in its new quarters, Mellon's Chemical Hygiene Fellowship continues its work with greatly expanded facilities, including 51 laboratories, offices, and special research areas. Directed by Dr. Henry F. Smyth, Jr., the Fellowship, which conducts studies in the safe production, handling, and use of chemicals, has been sponsored since 1937 by Union Carbide Chemicals Company, Division of Union Carbide Corporation. Some of the scientists in the group were among the earliest of the country's applied toxicologists.

Also housed in a building specially designed for its purpose are the Radiation Research Laboratories. This 18,000-square-foot structure was planned specifically for Mellon Institute's fudamental research in the radiation sciences. Heading these investigations is Dr. Robert H. Schuler, formerly of the Brookhaven National Laboratory.

Dr. Schuler and his staff are pursuing studies on the effects of radiation on materials of all types and forms. In addition, radiochemical techniques are used in studies of the mechanisms of chemical reactions in general. The research is aimed at discovering the behavior of materials under high-energy irradiation.

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(For details, use Key # L-14 on card on page 1)

RESUSCITATION AIRWAY TUBE

An S-shaped plastic tube, designed to make resuscitation by expired air easier and more effective, has been developed by Johnson & Johnson. Called the "Resusitube Airway," it provides a mouthpiece for the rescuer and a breathing tube for the victim that helps keep the air passageway open, and makes actual mouth-to-mouth contact unnecessary. The compact device can be used on all unconscious and non-breathing victims of drowning, electric shock, smoke or gas inhalation, drug or chemical poisoning, injuries to chest and other causes of asphyxia. The tube is available in two sizes: one for adults and children over three, the other for infants.

For details, use **Key # FA-2** on inquiry card on page 1.

PORTABLE OXYGEN KIT

An emergency medical oxygen kit, manufactured by the Montbell Products Corp., offers a standard "D" cylinder containing a full 360 liters of oxygen, sufficient for one hour. When empty, the unit may be refilled over and over again at any oxygen servicing center that deals in medical oxygen. Depots are located in every major city in the United States. The kit is suitable for use by factories, travelers, institutions, schools, first aid rooms, civil defense units, police squad cars and fire departments, etc.

For minor ailments, not ordinarily calling for the services of a doctor, oxygen may be self-administered by inhalation therapy. Kit supplies quick resuscitation in first aid emergencies. Kit is lightweight, easy to carry and to use, always ready.

For details, use **Key # FA-1** on inquiry card on page 1.

SPRAYED-ON BANDAGE

A new idea in the treatment of minor cuts, bruises, scratches and burns is the development of "Bandamycin" by New Medical Techniques, Inc. Particularly useful for

FIRST AID DEVELOPMENTS

areas where an ordinary bandage would be cumbersome or inconvenient, this sprayed-on plasticizing covering is porous, permitting the skin to breathe, and it contains the antibiotic, Neomycin, which is particulary effective against skin bacteria. The antibiotic is released continuously and at a constant rate from the film. The plastic film does not have to be peeled off; it can be painlessly removed by wiping with plain water. Packaged in an aerosol container, the spray treatment has been found useful in the control of contact dermatitis as well as for medical first aid.

For details, use **Key # FA-3** on inquiry card on page 1.

EYE-WASH WALL FOUNTAIN

A new wall-mounted emergency eye-wash fountain finished in stainless steel, and concealing trap and other working parts has been designed by the Haws Drinking Faucet Co. Designated Model 7450, it is intended for wall installation where the handsome appearance of smoothly contoured stainless steel is desired. The fountain provides instant first aid for eye contamination by chemicals, caustics or foreign particles. This immediate source of relief can often prevent serious or permanent injury, and it provides an effective first aid step pending arrival of medical aid. Medical authorities point to the importance of sufficient water irrigation to counter eye contamination. Stainless steel for this model is 18-gauge, type 304. A quick-opening lever handle valve activates twin chrome plated fountain heads that direct streams of water into the eyes. Water pressure and volume are automatically controlled by Haws regulators.

For details, use **Key # FA-4** on inquiry card on page 1.

PRE-PACKAGED SALT TABLETS

Four completely new all-plastic dispensers for Hav-aLift Coated and Regulated Salt Tablets are announced by The A. E. Halperin Co. Each dispenser comes complete with two mounting screws. The coated tablets disintegrate at a regulated rate to eliminate the possibility of nausea or digestive disorder. The pre-filled dispensers are available with either Salt or Salt-and-Dextrose Tablets, and are packed 12 dispensers to a case.

For details, use **Key # FA-5** on inquiry card on page 1.

MEDICAL MEDALLION

A new medical medallion which comes as a neck piece, bracelet or key chain is currently being marketed by The Walter H. McKenna Co. Intended primarily for the use of diabetics, cardiac cases, persons allergic to penicillin or other drugs, or, generally, those who would require prompt and proper medical attention should they become ill, the disc is fashioned in sterling silver and has a brilliant, simulated cross of red and the words "MEDICAL ATTENTION" enameled on the front. The rear is left blank in order that the owner's name, address, blood type, insulin ratio, or any other data or instructions necessary to his well-being may be engraved.

For details, use **Key # FA-6** on inquiry card on page 1.

EMERGENCY OXYGEN UNIT

The completely equipped, hand portable unit features a pressure reducing regulator to permit oxygen flow easily and safely. A twist of the wrist and it's "ON" . . . reverse and it's "OFF." The "Oxy-Quik" unit requires no tools, wrenches or washers to operate. Tank is replaced in 30 seconds and refills are readily available. The unit is light-weight—only 2½ lbs. —contains oxygen tanks, pressure reducing regulator, mask and hose in a plastic carrying case which is designed to hang on walls, snap or clasp on stretchers, wheel chairs, etc. Units can be carried to disaster areas and first aid stations and can be snapped to stretcher while transporting patient. Manufactured by Oxygen Equipment & Service Co.

For details, use **Key # FA-7** on inquiry card on page 1.

LIGHTWEIGHT FOLDING STRETCHER

A new lightweight folding stretcher which weighs only 7¼ pounds, yet is capable of supporting more than 400 pounds is now available from Medical Supply Co. in the U. S. and Camesco Medical Supplies Ltd., in Canada. Of aircraft-type aluminum tubing and vinyl-impregnated nylon construction, the UtiliPort takes only 37″ x 3″ storage space when folded. Unfolding it to its 6′2″ length is a simple, fast operation and special hinge sleeves quickly slide into position for positive locking. The abrasion-resistant nylon is unaffected by moisture, mildew or rot, and is resistant to gases, flame or cold. The UtiliPort folding army-type stretcher may be purchased with choice of metal wall case or fabric carrying pouch.

For details, use **Key # FA-8** on inquiry card on page 1.

NEW TABLETS STABILIZE INTESTINAL FLORA

"Lactinex" tablets, made by Hynson, Westcott & Dunning, Inc., help to re-establish the normal physiology of the intestinal tract in gastrointestinal disturbances and give quick relief from uncomplicated diarrheas, including those caused by antibiotics. The new tablets contain a viable culture of Lactobacilli acidophilus and bulgaricus with the naturally occurring metabolic enzymes that are produced by these organisms. They have a pleasant malt flavor and are said to produce no undesirable side-effects.

Medical reports also indicate that the new tablets will aid in the treatment of painful, ulcerous inflammations of the mouth, such as canker sores. These sores have been associated with social drinking, fatigue, menses, upper respiratory infections, poor nutrition, etc. and at times may account for increased employee absenteeism. "Lactinex" tablets, of value in all gastrointestinal disturbances not involving surgery, are available in bottles of 50 tablets, boxes of 12 and 1 gram packets.

For details, use **Key # FA-9** on inquiry card on page 1.

FIRST AID KIT WITH WINDOW

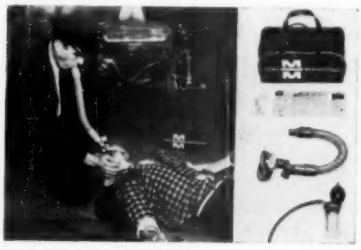
The addition of a C-Thru window in the cover of the Davis First Aid Kit makes possible more effective and rapid inventory surveillance of first aid supplies. This is the newest development brought to industrial first aid by the Davis Emergency Equipment Co. Through the window a glance reveals the contents of each individual carton. Furthermore, plant safety is increased when the danger of running out of important supplies is minimized. The new C-Thru kits are designed for hanging on the wall, and can be quickly removed for carrying to the required area. The Davis Company offers a comprehensive selection of dressings and treatments for cuts, burns and other injuries.

For details, use **Key # FA-10** on inquiry card on page 1.

MOUTH TO MASK RESUSCITATOR

Globe Industries, Inc. announces the development of a new "Globe M/M Mouth-to-Mask Resuscitator." The new resuscitator is an extension of the approved mouth-to-mouth technique. In recent years, studies have revealed that mouth-to-mouth breathing is superior to manual resuscitation methods in assuring ample pulmonary ventilation. The required intimate contact in mouth-to-mouth resuscitation has made this method sanitarily objectionable for reviving adult victims. Globe's new resuscitator eliminates this objectionable intimate contact.

The "Mouth-to-Mask" valve permits passage of air only from rescuer to the victim. The first air which the victim receives in each breathing cycle contains the full oxygen content (21%) of surrounding air. At no time is the patient's breath inhaled by the operator. Rescuer monitors chest movement and color of lip without interrupting rhythm of breathing. A rebreathing system prevents hyperventilation and permits continuous use for long periods of time. The oronasal face mask assures a tight seal, thus giving all benefits of both mouth-to-mouth and mouth-to-nose resuscitation. This equipment for "manual" resuscitation weighs only 2 pounds.



For details, use **Key # FA-11** on inquiry card on page 1.

NEW PRESSURE BANDAGE

A new pressure bandage with advantages for industrial medicine has been developed by Conco Surgical Products. Called "Elastic-foam," it is a combination of the cotton elastic and pure soft foam rubber. This new bandage can be applied quickly and easily, and used directly over open wounds, burns, and dermatitis. Because it absorbs a minimum of five times its own weight of moisture, the bandage eliminates the necessity of frequent dressings and maintains a minimum adherence to wounds. It can be sterilized, and laundered

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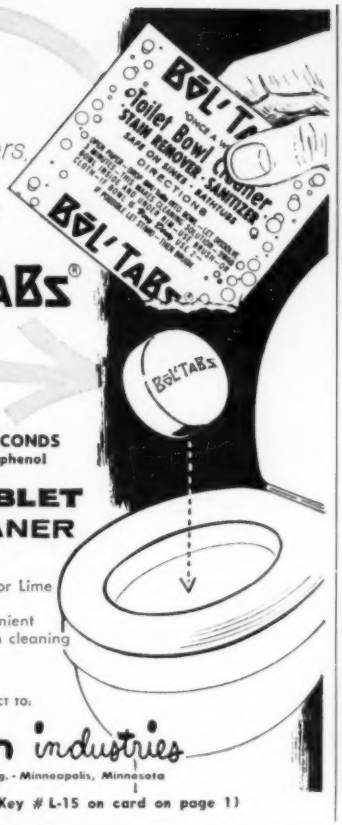

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(For details, use Key # L-15 on card on page 1)

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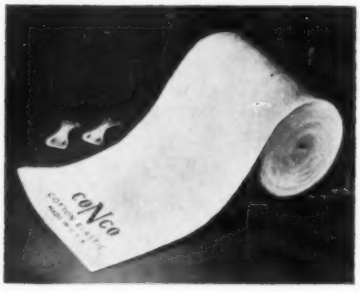


repeatedly. Slits on the foam rubber create a multiple gripping surface which will remain in position for an indefinite time. No shaving of body parts, no adhesive, and no powder are necessary.

For details, use **Key # FA-12** on inquiry card on page 1.

TRAVELERS' FIRST AID KIT

An inexpensive first aid kit, introduced by E. D. Bullard Co., is made of sturdy weatherproofed green vinyl on the outside with clear plastic pockets on the inside, and contains six single Unit First Aid Paks. The travel kit weighs 26 ounces and is 5" x 8" when closed. It is compact enough to fit into the glove compartment of a truck, bus, automobile or boat, or in a pocket of a jacket. Enough first aid material is included to give adequate protection for from six to ten people. All individual first aid units are packaged in Polyethylene to assure freshness no matter when they will be used. The units may be chosen from any of more than 100, including antiseptics, plastic bandages and burn treatments.

For details, use **Key # FA-13** on inquiry card on page 1.

FIRST AID SPRAY

An easy-to-apply spray for first aid use is offered by Sprayway, Inc. Packaged in an aerosol container, the spray is a combination antiseptic, germicide and topical anesthetic. For minor cuts, wounds, abrasions, burns, scratches and insect bites, the spray kills germs, seals out dirt, reduces pain and soothes the skin, according to the manufacturer.

For details, use **Key # FA-14** on inquiry card on page 1.

MOUTH-TO-MOUTH RESUSCITATING TUBE

A mouth-to-airway emergency resuscitating tube, patterned after air passages in the human body, has been developed by the Mira Corp. Laboratory measurements and results under actual emergency circumstances demonstrate the mouth-to-mouth, or mouth-to-airway method as an effective technique for reviving non-breathing victims of drowning, smoke or gas asphyxiation, or electric shock. It is reported capable of moving from three to five times as much air into the lungs as other approved manual methods. The tube eliminates direct oral contact between rescuer and victim, keeps open the victim's air passageway, and requires a minimum of energy from the rescuer. The tube is made of durable polyethylene plastic, is resistant to most chemicals used in cold sterilization, and may be sterilized or autoclaved. Available in two sizes, for adults and for children.

For details, use **Key # FA-15** on inquiry card on page 1.

BURN KIT & AEROSOL SPRAY

A burn kit has been announced by Otis Clapp & Son, Inc., for the first aid treatment of minor burns and wounds. Suitable for industrial first aid stations and for emergency crews, the kit contains aerosol sprays, medicating creams, bandages, adhesive tape, etc.

Also announced is the company's Obtundia Aerosol Spray, a combination antiseptic, germicide, fungicide and surface anesthetic. Packaged in a plastic squeeze bottle, the spray can be applied easily to open cuts and wounds to destroy bacteria, as a treatment for athlete's foot, and to reduce the soreness of burns, abrasions and contusions.

For details, use **Key # FA-16** on inquiry card on page 1.

NEW EYE-RINSE BOTTLE

A simple eye-rinse bottle has many advantages of convenience and use in flushing out dangerous substances from the eyes. On-the-job tests have proven that the Advance Eye-Bath Bottle offers such advantages for instantaneous application. The pneumatic principle of the bottle has been shown to be equally effective and safe in rinsing for both slight and severe chemical burns.

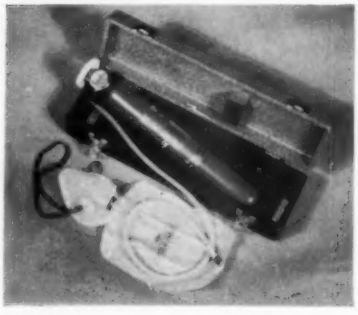
Advance Eye-Bath Bottles are inexpensive. This means that more of them can be kept throughout the plant where they are immediately accessible. The bottles are simple to clean, unbreakable, and easy to use in any position (standing, sitting, etc.). The American distributor is the Advance Glove Manufacturing Company.

For details, use **Key # FA-17** on inquiry card on page 1.

PORTABLE COT WITH CHAIR-BACK FEATURE

The Ferno Mfg. Co. has announced an unusual development in the hospital and emergency equipment field. Called the "Stretch'R-Chair," the new product is an 8 positioning, lightweight emergency cot. Designed for easy maneuvering through narrow corridors and up steep stairways, the cot weighs only 30 pounds and it has an adjustable chair-back to allow patients to sit up in the ambulance, etc. The new stretcher rolls on two ball-bearing wheels, has telescopic handles which shorten to 59" and folds flat for compact storage to 4½" x 21½" x 41". The new cot is constructed of aluminum and leatherette covered plastifoam.

For details, use **Key # FA-18** on inquiry card on page 1.



EMERGENCY OXYGEN KIT

"**E**mergox," a new portable kit to furnish emergency oxygen, combines a number of features to make it suitable for use in industrial plants, on commercial vehicles and in the field. The new kit is said to be able to withstand such rough treatment as bumping, banging, exposure to direct flame, etc. without danger.

The kit's operation is said to be practically fool-proof. Simply slip on a face mask and turn a control knob. The correct flow of oxygen is controlled automatically. The unit is completely portable, weighs 2½ lbs. and is only 12" long. It supplies oxygen for 20 minutes, long encugh to summon further medical aid. The "Emergox" twin unit supplies up to 60 minutes of oxygen. Made by Emergox, Inc.

For details, use **Key # FA-19** on inquiry card on page 1.

POISON IVY CREAM

"**K**erodex," a barrier cream produced by Ayerst Laboratories, is effective against poison ivy, oak

and sumac. Its use has reduced greatly the incidence of these infections among a large number of railroad track workers, section hands and other outdoor workers. Greaseless and stainless, "Kerodex" applied to skin forms an invisible shield against acids, alkalis, dyes, inks and hundreds of other skin irritants found in modern industry. The cream is as tough and flexible as the skin itself, and can be used with complete safety on face, hands or body, the company states. After use it can be wiped or washed off.

For details, use **Key # FA-20** on inquiry card on page 1.

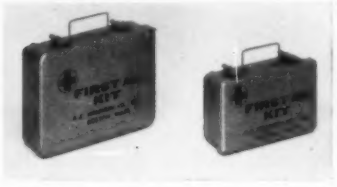
MARINE FIRST AID KIT

This revolutionary new plastic container Marine First Aid Kit is just introduced by Forest City Products, Inc. Firmly sealed plastic container makes kit waterproof, rustproof and mildewproof, and it will even float when dropped in water. Contents provide complete surgical handling for minor injuries including adhesive tapes, plastic strips, antiseptics, medications, absorbent cotton, complete First Aid Instructions, and other items. Available in two sizes.

For details, use **Key # FA-21** on inquiry card on page 1.

NEW FIRST AID KIT

A completely new concept in Unit-Style First Aid Kits was introduced at the 1959 National Safety Congress by A. E. Halperin Co., Inc. The greatest feature of these kits is that they are round in all corners, so there are no sharp corners anywhere.



The bottom section is made by means of a drawn extrusion which leaves no unsightly welds, thus giving maximum protection against moisture and dirt. Another feature is that the kits are treated with zinc chromate prior to painting to prevent any rusting in the event the kits are scratched. These Halco "Kurvedge" Unit-Style Kits are interchangeable with any unit refills and are available in 10-unit, 16-unit and 24-unit sizes.

For details, use **Key # FA-22** on inquiry card on page 1.

CHEMICAL BURN STATION

"**N**eutralize," a buffering solution developed a few years ago by the E. D. Bullard Co., has a new package to make it more convenient for people working with acids or alkalies. The compound is a phosphate buffer that inactivates effects of chemical irritants in the eyes and on the skin. A relatively small quantity of "Neutralize" counteracts either acids or caustics. It stops the chemical action, and prevents damage to the eyes or skin. It is packaged in 4, 8 and 32 ounce and one gallon Polyethylene

THE POSITIVE LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH!

Prevents death and injuries from falling. If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

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VENT-A-DRUM automatic SAFETY VALVE

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The Vent-A-Drum *prevents* dangerous explosions which occur from fires and sudden temperature changes when storing flammable liquids, by automatically allowing air to enter or escape container. In addition to protecting property and lives, Vent-A-Drum pays for itself by reducing fuel evaporation 50%! Used by leading firms, approved by Factory Mutual Testing Laboratories. Precision-engineered, never requiring adjustment or replacement of parts. Cast Bronze. Completely guaranteed.

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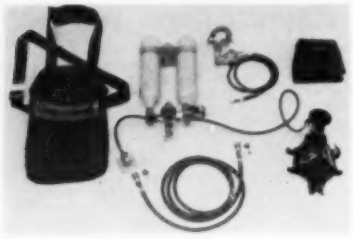
(Use Key # L-18 on Inquiry Card on page 1)

bottles and in larger quantities for use in portable eyewash fountains and showers.

To alert employees requiring first aid for chemical burns, this new chemical burn station has been developed. This station, composed of a large plastic backboard and a container for a 32 ounce bottle of solution, attaches to any wall surface. Manufactured of shatterproof plastic, the backboard is brilliant yellow. On it are complete instructions for the emergency first aid treatment of chemical burns.

For details, use **Key # FA-23** on inquiry card on page 1.



OXYGEN BREATHING PROTECTOR

An oxygen breathing device for first aid, rescue, escape, or work in toxic or oxygen-deficient atmospheres has been announced by the Medical and Hospital Department of Globe Industries, Inc. Called the "Short-Snorter," the compact, light-weight equipment consists of a demand valve type face mask, connecting air tube, and one or two cylinders of air or oxygen that are carried in a shoulder-sling bag. Resuscitator valves are available for automatic resuscitation. The self-contained units are made in a wide variety of models.

For details, use **Key # FA-24** on inquiry card on page 1.

NEW "MERCY" DRESSING

Telfa Pad, a new principle of wound dressing by Kendall Co., is available to users of the unit system in MSco units of 1-inch plastic adhesive bandages and 2-, 3-, and 4-inch bandage compresses, reports Medical Supply Co. Called the mercy dressing because it does not hurt when taken off a wound, "Telfa

Pad" is a new type nonadherent dressing that consists of a nonwettable, perforated plastic film firmly bonded to a highly absorbent material.

Wound drainage is absorbed through perforations in the plastic film by the pumping action of the absorbent backing. It allows the wound to drain, but does not stick to the scab. Thus, it prevents damage to and scarring of the healing skin tissue and speeds wound recovery.

For details, use **Key # FA-25** on inquiry card on page 1.

Work Injuries Declined in 1958

Disabling job injuries among American workers totaled 1,810,000 during 1958—the lowest level since 1939—according to preliminary estimates compiled by the U. S. Department of Labor's Bureau of Labor Statistics. Deaths from work injuries declined to 13,300, the lowest total in the Bureau's 23-year series.

From a high of 2,414,000 in 1943, the volume of work injuries has decreased 25 percent, despite a steady upward trend in the employed labor force. Except for a few minor fluctuations, the ratio of injuries to workers has declined gradually from 45.7 per 1,000 in 1943 to 29.4 in 1958. The 1958 injury total was 4 percent below the revised estimate of 1,890,000 for 1957. Although lower employment and shorter hours of work in 1958 contributed to this decline in injuries, there was also a decrease in the rate of injury occurrence—to the lowest level on record.

In addition to the 13,300 workers killed on the job, 75,700 suffered some permanent physical impairment, ranging from the amputation or partial loss of use of a finger or toe to complete inability to engage in any future gainful employment. The other 1,721,000 injuries each disabled a worker for 1 full day or more after the day of injury, but resulted in no permanent ill-effects.

Approximately 38 million mandays of disability resulted from these injuries during 1958. When the future effects of the deaths and permanent impairments are evaluated and added to the immediate loss, the total attributable to the 1958 injuries will be approximately 160 million man-days—equivalent to a year's full-time employment of about 515,000 workers.

Manufacturing showed the greatest decrease in the volume of injuries, from 392,000 in 1957 to 343,000 in 1958, or about 13 percent. Although this decline was due in large part to lower employment and a shorter work week, there was also a decrease in the frequency of injuries.

Mining recorded the largest percentage decrease in injuries (14 percent), but this was due almost entirely to lower employment and shorter hours. Preliminary reports to the U. S. Bureau of Mines indicated a record low volume of deaths in coal mining.

Injuries to transportation workers decreased 5 percent, somewhat less than did employment. However, in contract construction and trade the volume of injuries declined more than employment.

The only increase in the volume of injuries occurred in the finance, service, government, and miscellaneous group of industries. Part of this rise was due to an employment increase of 5 percent in state and local government, and about 1 percent in finance and service. However, the volume of injuries for these groups increased less than did employment. Both employment and the volume of injuries in the Federal service decreased slightly.

The estimate of disabling work injuries in agriculture reflects a slight increase in employment of hired workers on farms, but a decrease in the number of farm operators and unpaid family workers, as reported by the Department of Agriculture. The over-all total of injuries remained at 300,000.

Lighting Developments

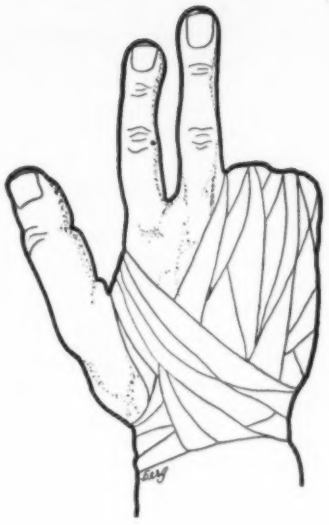
New, more-powerful electric light sources and more-efficient luminaires which reduce glare were the leading developments in the illumination field during the past twelve months, according to a dramatized progress report delivered by a committee of experts of the Illuminating Engineering Society at its recent meeting in San Francisco.

The development of more-powerful electric light sources and improved luminaires, according to E. A. Linsday, chairman of the Progress Report Committee, was incumbent on the lighting industry in order to approach the levels of illumination that vision scientists, following a ten-year laboratory study, declared are necessary for efficient functioning of the human eye.

Exhibited in the report were views of industrial plants illuminated with from three to six times more light than it was possible to develop as recently as the middle of World War II, Mr. Linsday pointed out. Another installation—the welding area of a machine shop—employed a combination of mercury and incandescent lamps that developed almost 100 times more light than will illuminate the infield of the forthcoming home of the San Francisco Giants baseball team.

Two other dramatic installations were in the transportation field. One was a new type airport runway light mounted above ground for greatest efficiency but built into an inexpensive break-away housing which, if struck by a landing plane, would collapse without damaging wheels or landing gear. A second new lamp now makes possible the illumination of the sides of the Panama Canal, until now recognized as serious hazards to night navigation.

Among new sources of higher light featured in the Progress Report was a new filament lamp with an iodine deposit which prevents discoloration or blacking throughout the life of the lamp. The lamp therefore gives full illumination level until eventual burnout. This new lamp is pencil size.



Learning The Hard Way

FORESIGHT SAVES EYESIGHT

"Foresight saved eyesight" in one accident where a workman was cutting sheets of slate with a carborundum disc. The disc shattered and a piece cut halfway through the worker's safety goggles. However, the plastic did not break and the man escaped with only bruises, and without eye injury.

UNGUIDED MISSILE

In many accidents, the innocent bystander is the one who must suffer. A careless workman, in a hurry to load his truck, did not make certain that the shipment of compressed gas cylinders was chained securely. When one rolled off into the street, the valve broke and the cylinder, an "unguided missile," took off, wrecking three cars and killing a pedestrian.

WATER? NO HELP HERE!

Water, contrary to tradition, is not the cure-all for fire protection. Management often fails to have the correct extinguishers in its proper location, as shown in this instance.

Asphalt kettle heaters, being used in a construction job, were left too long without supervision, overheated, and the asphalt burst into flame. Workmen closeby turned a water hose on the fire, causing the asphalt fire to spread over the floor, making matters considerably worse. The fire department extinguished the fire with a water spray. Had a portable dry-chemical type extinquisher been on had, the expenses and destruction would not have been so great.

THE UNGUARDED MOMENT

Even the obvious failed to protect one lineman. His responsibility: to remove a 440-volt transformer from a pole. He cut the jumper with a wire cutter—however, he had neglected to put on his rubber gloves which were on his belt at the time that he died.

THE LUCKY MOMENT

Of course accidents can happen—again because of failure to heed the obvious rule—and still produce no injury. One worker, using a hammer with oil on the handle, was also wearing wet gloves. He lost control of the hammer which went flying between another employee's legs. No serious result; but, there might have been. Hands should be dry and clean; tools should be dry and clean.

Crane Booms and High Power Lines

One of the items discussed at the Safety round table of the annual convention of the Institute of Scrap Iron and Steel, Inc., was the matter of hazard from crane booms contacting high tension electric lines. It was evident there are many yards where 30,000 to 40,000 volt power lines are so located as to be within the reach of crane booms—if not in normal operating positions, at least where such contact may be made under extraordinary circumstances.

Effects of Electricity

In many ways, electricity acts like water. For example, if a pail of water is poured on the ground, it forms a pool which spreads out from the center in lessening amount the farther it goes, until it can soak into the ground. Electricity with its tendency to "go to ground" also acts in this manner. If a crane boom touches a high voltage line, the current carries down the boom through the frame of the machine, through the wheels to the ground. As the earth cannot absorb all of this current immediately, the electricity spreads out in lessening amount until it can all soak in.

If the crane is mounted on crawlers or rail, the current dissipates more quickly than it would if the mounting were on rubber tires.

The effect of electricity on the human body depends upon the amperage of the current, the path of flow of current through the body, and the length of time of exposure to the current. One-tenth of an ampere usually causes DEATH!!

According to Ohm's law, current (amperes) is equal to pressure (volts) divided by resistance (ohms). The average person (dry) offers approximately 100,000 ohms resistance. If such a person were to be subjected to 30,000 volts, he would be exposed to a current of three-tenths amperes—sufficient to cause sure death if this current were to pass through vital organs for even a short period of time.

The crane operator is in a similar position to a bird on a wire—if the boom should contact the power line, he is safe as long as he remains in the cab. If, however, he should attempt to get off the crane, he would put himself into the circuit and be electrocuted. Even if he were to jump and attempt to run away, in running he would have both feet touching the ground so that the electricity would go up one leg and down the other . . . . considering that the current carries through the ground for some distance (like a puddle of water).

Similarly, any person on the ground near the crane or touching the crane under these circumstances, would be electrocuted.

There were 67 fatal injuries in one year in one state from cranes contacting electric lines!!

The best preventive method is to prohibit cranes positively from entering an area where a high voltage line may be reached by the crane boom in any position.

As a secondary measure, a device may be attached to the crane boom to be actuated by induced current from the line, flashing a warning light and sounding a signal if the boom is moved to within six feet or so of the line.

Another protective means consists of a series of barrier rods mounted parallel to the boom by large insulators. These rods, rather than the boom, would contact the wire and the insulators would prevent the electricity from getting to the boom and following it to the ground near the crane, or touching ground.

Oil Burning Equipment

A new standard on fire safety requirements in the installation of oil burning equipment has been published by the National Fire Protection Association. The new edition of the standard, NFPA No. 31, incorporates 24 changes revising and clarifying the previous edition. The standard, purely advisory as far as the NFPA is concerned, is widely used as a basis of law and regulation throughout the United States and Canada. It covers use and installation of everything from home portable oil heaters to commercial and industrial oil-burning equipment. It was developed by the NFPA Sectional Committee on Liquid Fuel Burning Equipment under the chairmanship of E. F. Tabisz of Underwriters' Laboratories of Canada.

Copies of the standard (NFPA No. 31, 64 pages, 60c per copy) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, Etc., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, OF SAFETY MAINTENANCE, published monthly at Rensselaer, N. Y., for October 1, 1959.

State of New York, County of New York, ss. Before me, a Notary Public in and for the State and County aforesaid, personally appeared Arthur Snyder, who, having been duly sworn according to law, deposes and says that he is the business manager of SAFETY MAINTENANCE, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management and circulation of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editors and business manager, respectively, are: Publisher, Alfred M. Best Company, Inc., Executive Offices, 75 Fulton Street, New York, N. Y.; Managing Editor, C. M. Kellogg; Editor, Harry Armand; Business Manager, Arthur Snyder; all of 75 Fulton Street, New York, N. Y.

2. The owner is Alfred M. Best Company, Inc., 75 Fulton Street, New York, N. Y.; and the owners of 1% or more of the stock are: Gertrude V. Ammermuller, 235 West 102nd Street, New York, N. Y.; Mildred B. Baird, 86 Prospect Ave., Montclair, N. J.; Voting Trustees under the Will of Alfred M. Best, 75 Fulton St., New York, N. Y.; Randolph C. Betts, Montreal, Canada; Clem & Company, Boston, Mass.; Lillian E. Floegel, 111 Stratford Ave., Garden City, N. Y.; Andrew J. Gavey, 75 Fulton St., N. Y. 38, N. Y.; Kellogg & Company, Westfield, N. J.; Alice L. Kellogg, 615 Tremont Avenue, Westfield, N. J.; Chester M. Kellogg, 615 Tremont Avenue, Westfield, N. J.; Wilhelmina J. Kellogg, 603 Tremont Ave., Westfield, N. J.; Frank J. Matre, 10 South LaSalle St., Chicago, Ill.; John R. McElraevy, 394 Porter St., Manchester, Conn.; Raymond T. Smith, 10 South LaSalle St., Chicago, Ill.; Vance C. Smith, 20 North Wacker Drive, Chicago, Ill.; Arthur Snyder, 75 Fulton St., New York, N. Y.; Kathryn Snyder, Garden City, N. Y.; Elma W. Thomas and Joan W. Thomas, Indianapolis, Ind.; William E. Whitney, 130 Clifton St., Belmont, Mass.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders and securities holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide ownership; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect in the said stock, bonds or other securities than as so stated by him.

ARTHUR SNYDER,
Business Manager.

Sworn to and subscribed before me this 24th day of September, 1959.

DONALD F. AYERS
NOTARY PUBLIC, State of New York
No. 30-5133375
Qualified in Nassau County
Commission Expires March 30, 1960

inside the trade

Edward J. Keegan has been named Manager of Divisional Sales of its *American Electric Switch Division* by *CLARK CONTROLLER COMPANY*, Cleveland manufacturer of electrical control components and systems. The American Electric Switch Division, with production facilities in Minerva, Ohio, manufactures service entrance equipment for residential and commercial buildings and certain industrial switch specialities. He has been with American Electric Switch for twelve years.

Edwin T. Goree has been appointed vice-president in charge of sales for the *Koehring Division* of *KOEHRING COMPANY*, according to an announcement by E. A. Brugger, president of the Division. Before joining Koehring, Goree was sales manager of commercial cranes and excavators for Bucyrus-Erie Company, with whom he had been associated for 12 years. During that period, he also served as assistant general sales manager, assistant sales manager for small machines and export sales representative.

J. E. Chadwick has been appointed to head a new department of Koehring Company to integrate sales to national and fleet buyers, according to an announcement by E. B. Hill, vice-president in charge of marketing.

The new department will be a part of Koehring's Central Office marketing activities. Chadwick, as Marketing Manager, National Accounts, will coordinate the relationship between national and fleet users of Koehring products and the sales activities of the ten divisions of Koehring Company.

Chadwick has held numerous sales positions in his 14 years at Koehring. Most recently, he has been in charge of sales for the Koehring Division and previously had been assistant sales manager of both the Koehring and Kwik-Mix divisions of the Company.

William T. Delcour has been named manager of *GOODYEAR Tire & Rubber Company's* industrial products district office at Denver, Colo., it has been announced by R. B. Warren, the division's general manager. Delcour replaces J. L. Reid, who has resigned from the company.

C. T. DuBreuil has been named Vice President and Chief Engineer for *THE FYR-FYTER CO.*, according to an announcement made by C. H. Somers, Senior Vice President-Manufacturing. Mr. DuBreuil, who will be in charge of the company's newly-established Central Engineering Department at Fyr-Fyter's Newark Plant, has been directing sales of the company's lines of automatic sprinkler, carbon dioxide, dry chemical and foam fire protection systems, including smoke detection and fire alarm systems. He had formerly served as Chief Engineer for Fyr-Fyter's Wooster Brass Plant and has a manufacturing and engineering background in the aircraft industry.

In his new capacity Mr. DuBreuil will be responsible for research and development, product engineering and system engineering for all of the company's lines of portable and wheeled fire extinguishers; fixed fire protection and fire alarm systems; nozzles and hose couplings, and all types of miscellaneous fire department equipment, including electronic sirens and public address systems.

M. L. SNYDER & SON, INC., of Philadelphia, has entered the safety footwear manufacturing field with the recent cash purchase of the *P. J. Noebel Co.*, of Brooklyn, which specialized in the manufacture of wooden sole clogs, boots, sandals, and similar safety footwear. The machinery and equipment have been transferred to Philadelphia and production commenced there September 1.

FEDERAL SIGN AND SIGNAL CORP., one of the nation's leading producers of vehicle and industrial emergency lights, sirens, and horns, has moved its general offices and Chicago production operations from Chicago's South Side into a modern one-story plant at 136th St. and Western Ave. in suburban Blue Island, Ill.

The 164,000-square-foot plant contains the country's most extensive and up-to-date facility for the design and manufacture of audible and visual signals for industry and government. *Folger M. Smith*, new products manager, related that the company has streamlined its production, testing, and research and development operations in the new location, and will be able to expand its services substantially to both business and communities.

As part of its extensive engineering facilities, the company has installed an enlarged "anechoic chamber," in the new location. (See picture.) Designed to test all types of signals from small buzzers to the giant air raid sirens, the room within a room has walls, ceiling, and floor covered completely with wedges of fiberglas sound absorbing material.

GELMAN INSTRUMENT CO., manufacturer of air pollution sampling and control devices, has announced the appointment of *C. W. Reed Co.* as sales representative in eleven Western states. The address of the Reed concern is 5959 S. Hoover St., Los Angeles 44, Calif.

WORKLON INC., pioneer manufacturers of lint-free, acid-resistant uniforms for special industrial purposes, has announced the promotion of *Carl Robinson* from the position of sales manager to general manager, and the appointment of *Murry Menkes* as Eastern Sales Representative. Mr. Robinson, who has been with Worklon since the company was organized in 1951, was formerly associated with S. Appel & Company. He is a graduate of CCNY, Class of 1942, and also studied at Columbia University, NYU, and at the University of Minnesota.

Top-level organization changes expanding the safety consulting firm of *ANDERSON ASSOCIATES* of Hamden, Conn., were announced by *Robert M. Anderson*, president. Six experts in the safety engineering field have been appointed to executive or staff positions with the company in preparation for an expected increase in assignments occasioned by the October 1 effective date of the new Connecticut laws requiring the organizing of individual company fire brigades and establishing uniform safety codes.

Jean R. Therrien of Hartford, former Workmen's Compensation auditor for the National of Hartford Group, has been appointed vice president and director of the auditing division.

John M. Hall of Staten Island, N. Y., recently retired New York City fire department building inspector, has been appointed secretary and director of the company's fire prevention division.

The former safety engineer of the Consolidated Edison Co., New York, *Arthur*

H. Hawk, has been named director of the industrial division.

Appointed director of the transportation division is *Richard J. Bush* of Nutley, N. J., who will supervise truck and bus fleet operations.

Martin A. R. Slack of New York, former supervisor of training for the New Haven Railroad's mechanical department has been named director of the educational division and will also be available for technical consultation on engineering problems.

Appointed safety consultant is *Arthur J. Sherwin*, former safety engineer for the Cosmopolitan Casualty Co. of New York City.

Anderson, a member of the American Society of Safety Engineers, the Connecticut Safety Society and the Greater New Haven Safety Council, will continue for the present to head the railroad and public safety divisions.

Lawrence C. Vail and *James M. Guthrie* have joined the National Cylinder Gas Division of *CHEMETRON CORPORATION* as medical sales representatives, it was announced by Robert W. Burmeister, head of medical sales. Vail makes his headquarters in the NCG Malden office, serving the Boston area, and lives in Somerville, Mass. Guthrie makes his headquarters and lives in Jacksonville, Fla., serving that area.

Four key promotions of Electrical Division personnel have been announced by Robert D. Anderson, Executive Vice President and Secretary of *McGILL MFG. CO., INC.*, Valparaiso, Ind. *James C. McGill* has been named Assistant General Manager, *James S. Eason*, General Sales Manager; *Howard Powell*, Plant Manager, and *Gunnard Nielsen*, Chief Product Engineer.

Effective January 1, 1960 two of the oldest and best-known names in the field of water measuring equipment will join forces.

Negotiations leading to the merger of *Hersey Mfg. Co.*, Dedham, Mass., and *Sparling Meter Co.*, El Monte, Calif., have been completed, subject to approval by stockholders of both firms. The combined organizations will be named the *HERSEY-SPARLING Meter Co.* Hersey's president, Winthrop P. Hersey, will be president, with Sparling's president, Ray C. Sparling, as vice president. Executive offices will be in Dedham.

The complete business of *Flaherty Mfg. Inc.*, Pocatello, Idaho, has been acquired by *KOEHRING COMPANY*, Milwaukee heavy equipment manufacturer. Flaherty manufactures power brooms with optional moldboard attachments, self-propelled aggregate spreaders, windrow measuring spreaders, portable crushers, rollers, and conveyors. The Flaherty firm will operate as a branch of Koehring's Buffalo-Springfield Division. Gene Flaherty, president of Flaherty Mfg. Inc., will remain as general manager of the new branch.

Appointment of *Richard P. Bell* as general manager of paint sales for the merchandising division of *PITTSBURGH PLATE GLASS CO.* has been announced by Felix T. Hughes, vice president, merchandising division. Mr. Bell succeeds Guy J. Berghoff who recently was appointed vice president in charge of the company's paint division. Prior to his appointment Mr. Bell had served as assistant to the president of Pittsburgh Plate during the past three years.

He joined Pittsburgh Plate during 1938 as a salesman at the firm's Baltimore distributing branch. He became paint manager of the Pittsburgh distributing branch in 1947, and was appointed assistant general manager of paint sales for the merchandising division in 1952 and continued in this capacity until 1956.

A native of Pittsburgh, Mr. Bell has been active in the local chapters of the Paint, Varnish and Lacquer Association and Producers Council, and the Chamber of Commerce. He is a graduate of Shadyside Academy and Princeton University.

ARTHUR EBERLE

With profound regret, *"Safety Maintenance"* reports the sudden death of *Arthur Eberle*, 65, on September 29th following a heart attack. For many years, Mr. Eberle was a district representative for Best's Safety Publications, prior to which he was an executive of Wallace Optical Co. He is survived by Mrs. Eberle and two daughters.

Mr. Eberle will be succeeded by *Dick Williams* of the New York City office as area representative for Pennsylvania and New Jersey.

A reorganization of the *Service Products Division of JOHNSON'S WAX* has been announced by S. C. Johnson, vice president of the division. Two new departments have been created in the division —the Service Products Sales Department and the Market Development Department.

E. J. Grant will head the former department as service products sales manager. He will direct sales of all maintenance, metalworking and special industrial coating products. He previously served as maintenance products sales manager.

Field sales force appointments as service products district managers are as follows: *R. A. Smyth*, North East; *R. H. Eggers*, Middle Atlantic; *T. L. Fitzgerald*, South East; *M. H. Hemsath*, East Central; *W. H. Kilpatrick*, West Central; *C. F. Donnell*, Western; *W. W. Cooper*, South West and *T. W. Werden*, Pacific.

Three Racine men have been named to newly created posts as market development supervisors. They are: *Peter D. Crane*, maintenance products; *Robert L. Paap*, agricultural and furniture waxes, and *John C. Lindblad*, special industrial coatings. George Boehm will direct the market development activities for metalworking products.

F. William Neuer and *Leslie R. Schoolfield* have joined the National Cylinder Gas Division of *CHEMETRON CORPORATION* as medical salesmen, it was announced by Robert W. Burmeister, head of medical sales for the company's medical gases, inhalation therapy and other medical equipment. Neuer is located in the Kansas City area and Schoolfield in the St. Paul area.

Richard B. Hazard, vice president of *RAYBESTOS-MANHATTAN, INC.*, Passaic, N. J., has been elected president of the Mechanical Packing Association, Inc. Hazard, who succeeds H. R. Poulson, has had extensive background in mechanical packings and rubber products.

The Mechanical Packing Association, established in 1933, is the national trade organization of the mechanical packing industry. Its membership is composed of both the leading companies in the industry and many of the smaller organizations.

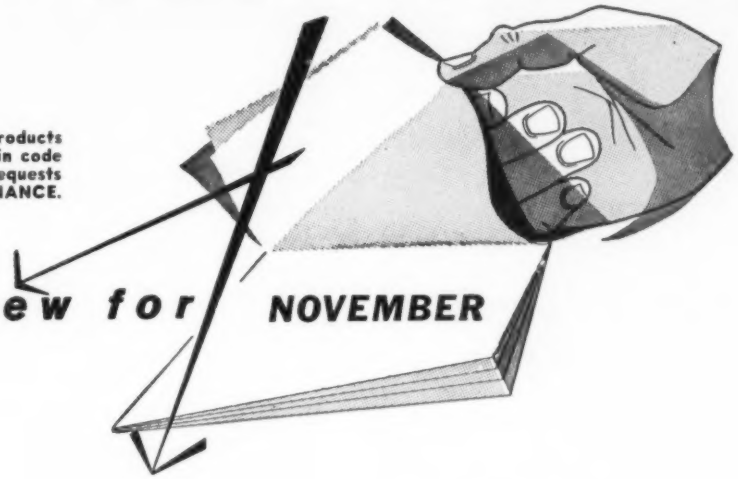
Safety Appointments

Quincy V. Tuma has been named Chief Safety Engineer for the nationwide activities of *TEXACO INC.*, succeeding Charles A. Miller, recently retired. He will be headquartered in Houston, Texas. Mr. Tuma has been with the company since 1933 and in safety work since 1938. He is a graduate of the University of Texas.

He is Vice President for Industry of the Texas Safety Association; Chairman of the Gulf Coast Division, Petroleum Section, National Safety Council; active on several American Petroleum Institute Accident Prevention Committees and Chairman of the Committee on First Aid; Vice Chairman of the Houston Chamber of Commerce Fire Prevention Committee; a member of Veterans of Safety and the American Society of Safety Engineers.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for NOVEMBER

NEW SAFETY FLOORING

(Use Key # 500 on Inquiry Card on page 1)

A FLOOR COVERING, reported to have great versatility, has been developed by the Midwest Resilient Floor Co. for application in industrial plants, trucking areas, loading docks, etc. The company claims the following features for Gran-I-Wood, a plastic cement and hardwood sawdust composite: Flameproof up to 3,200 degrees Fahrenheit; grease-proof and acid resistant; impervious to heat, cold and other climatic conditions such as moisture fluctuations; may be installed over many other flooring materials, with minimum surface preparation; noise absorbent; non-slip surface; resistant to germ growth; anti-fatigue resiliency; vermin-proof; will accept nails, screws, cleats, and metal anchoring for heavy pressure areas; never buckles or shrinks, and is considerably lighter than most floorings; and, it is a permanent installation which may be used over an entire floor, or in heavy stress areas, saving complete floor replacements.

FIRE RETARDANT PAINT

(Use Key # 501 on Inquiry Card on page 1)

FIRE RETARDANT qualities of a new interior paint—F-X, a product of the St. Regis Corp.—were illustrated in a demonstration involving a model two-room building. A duplicate of the building, decorated with ordinary interior paint, was set on fire first, and within 10 minutes had burned to the ground. Spectators were invited to examine the building decorated with the fire retardant paint after the blaze died out for lack of combustible materials. They found the room in which the fire was begun had blistered walls. The blisters were scraped off and the quarter-inch plywood walls were undamaged and ready for re-painting. As part of the demonstration, a suite of living room furniture was placed on a platform of plywood. The plywood was coated with F-X Fire Retardant Paint and a fire was set under the platform. The flames failed to penetrate the platform floor and the furniture was undamaged. The paint has received a 10 rating from Underwriters' Laboratories, Inc.

WOMEN'S LINT-FREE UNIFORMS

(Use Key # 502 on Inquiry Card on page 1)

THREE NEW lint-free uniforms for women have been designed by Worklon, Inc., for use in precision industries and special job requirements. Lint-free clothing is a necessity in the manufacture of highly sensitive electronic devices, optical instruments, rocket and missile guidance systems, ball-bearings, and other products in which the polished surface, or extremely close tolerance, is an important factor in the operation. In precision operations, the smallest bit of lint from a woolen or cotton garment can throw costly equipment out of adjustment. The new lightweight uniforms, made of dacron, resist acids and caustics and are suitable for use in the chemical and electro-plating industries, and similar occupations in which ordinary clothing quickly deteriorates. The three models, which are also resistant to grease, oil, paint and abrasion, include a slack and blouse combination, a reversible laboratory coat, and an attractively fashioned industrial dress.

GERMICIDAL FLOOR CLOTH

(Use Key # 503 on Inquiry Card on page 1)

ADDED SAFETY and sanitation are possible with the semi-disposable Masslinn Cleaning Cloth. This product, manufactured by Chicopee Mills, Inc., is used for dry dusting floors when attached to the Masslinn Sweeping Tool. It contains a fire retardant and a germicide.

The unit holds the over-sized cloth so that the entire surface is used for long periods of cleaning before disposal, and complete floor or wall areas can be cleaned without dust, and without oiling, dampening or chemical sprays. The cloth is a flannel-like non-woven fabric which absorbs and retains dust and dirt. It is uniformly impregnated with a special emulsion for maximum pick-up and does not leave any deposits on the floor or edges of rugs. It imparts a clean, lustrous finish to floors without any slip hazard, and may also be used for furniture polishing and dusting.

AIR SAMPLING KIT

(Use Key # 504 on Inquiry Card on page 1)

AN AIR SAMPLING kit, manufactured by the Gelman Instrument Co., combines a vacuum pump, flowmeter and weather proof housing. The kit can be used to collect samples of dusts, radioactive aerosols and gases. For determining dusts in air, special filters and filter holders are available as accessories. The vacuum pump used is a carbon ringed piston unit which never requires lubrication. A choice of 2 or 4 CFM air capacity is available. The flow indicating device is a tapered orifice plastic meter. This instrument has uses in collecting dusts and gases for analysis in air pollution studies, health physics surveys, safety-health work and process efficiency tests. The determination of air-borne dust has become increasingly important in precision instrument and electronic work where small particles cause component malfunction.

CHANGEABLE LETTER BULLETIN BOARDS

(Use Key # 505 on Inquiry Card on page 1)

A NEW LINE of changeable letter bulletin boards, for industrial plants, office buildings, schools, stores, professional offices, restaurants etc., is available from the Albert W. Pendergast Safety Equipment Co. The boards consist of a hardwood frame with specially processed grooved black felt background. Letters are Roman art style in white plastic, providing striking contrast and easy readability. Easy to insert, a message can be changed in a matter of minutes. The No. 125 board, 9¼" × 13½", comes complete with 200 letters and numbers in a sturdy partitioned box. Other sizes available.

HEAVY DUTY PORTABLE INCINERATORS

(Use Key # 506 on Inquiry Card on page 1)

TWO NEW small capacity, heavy duty portable incinerators have been announced by the Plibrico Co. Plibrico Model C-10 has a capacity of 100 lbs./hr. and Model C-15 is rated at 150 lbs./hr. Ratings are based on average dry waste with a value of 6000 BTU per pound. Identical in design, both models feature heavy duty construction. Exterior casings are of 10 gauge steel and the furnace lining is 6 inches thick, combining block insulation and refractory products. The units are mounted on 4" steel skids.

Charging of waste is made simple with a 24" × 20" counter-balanced charging door, and the door frame includes a lip on

which to rest waste containers. Dump-type step grates increase burning efficiency and facilitate clean out.

Measurements of the C-10 model are 5'5" high by 5'3¼" long by 3'4¼" wide (not including door handle). Model C-15 is 12" wider; other measurements the same. To simplify installation, breeching connection may be at any of three locations.

Both models are available as complete factory assembled units, ready for operation when connected to stack or breeching. Where narrow passages, doors, or elevators would hamper delivery of an assembled unit, models may be shipped knocked down, with erection and lining handled on the job site by a Plibrico distributor.

PORTABLE AIR/FOAM SYSTEMS

(Use Key # 507 on Inquiry Card on page 1)

AIR/FOAM equipment, used to extinguish dangerous flammable liquid fires (involving gasoline, oil, grease, paint, etc.), has been introduced by the Fyr-Fyter Co. in a series of 8 new portable Foam Paks. The compact units are available in a full range of sizes for use with ¾" booster hose or 2½" hose lines. Each Pak is a complete air/foam system. Components furnished in kit form include an Underwriters' approved lightweight aluminum constructed playpipe (20, 40, 60 or 120 GPM size), a pick-up tube, and a supply of 3% High Expansion Foam Compound (5 to 80 gallons, 10 to 20 minute operating time, depending on the model). Operation is accomplished simply by attaching water line to playpipe and inserting pick-up tube in compound container. Water pressure through the playpipe creates a jet action which draws the foam compound into the pick-up tube. Water and the high-expansion compound combine in automatically metered rates to deliver a maximum volume of air foam. A fluid foam blanket is produced in seconds. The chemically harmless foam quickly smothers a flammable liquid fire and can also be used to shield victims while they are being rescued, to prevent fire from spreading from building to building, and to help protect merchandise, furnishings, records, etc., against heat, fumes and smoke. Because it contains a large percentage of wetting agent, the compound may also be used as an extinguishing agent for ordinary combustible materials.

HEARING PROTECTOR FOR GROUND CREWS

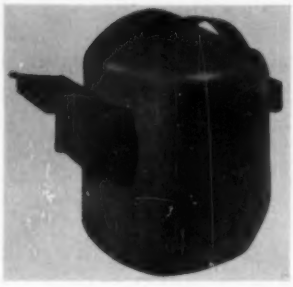
(Use Key # 508 on Inquiry Card on page 1)

FLEXIBLE plastic ear plugs, which provide complete closure of the ear canal, have been designed by the Rye Sound Corp. for ground crews working in or near areas of jet aircraft operation. Super-Ear Protectors reduce noise level about 30 decibels, or to about 1/1000th of the original intensity. A small tab facilitates proper fit and removal. Pairs are available in large and medium sizes, and are supplied in a permanent, protective carry case.

ALL-FILTER DUST MASK

(Use Key # 509 on Inquiry Card on page 1)

THE ENTIRE MASK is the filtering area in this new, lightweight, urethane filter respirator by Watchemoket Optical Co. Called Resp-R-Aid, this mask is molded in one piece of plastic foam and has a functional filtering area more than double that of most other masks, the company states. The increased filtering area greatly reduces inhalation resistance to make breathing considerably easier, and the special urethane construction filters out even minute particles. The all-plastic mask weighs hardly more than an ounce, and its soft rolled edges assure a comfortable fit, snug to the contours of any face. Resp-R-Aid consists of a one-piece filter, a plastic chassis which houses an inhale valve and two exhale valves, and an adjustable neckband which is fastened to a plastic retaining band. The filter can be washed repeatedly and re-used; it is non-allergenic, does not absorb odors and will not mildew or deteriorate.

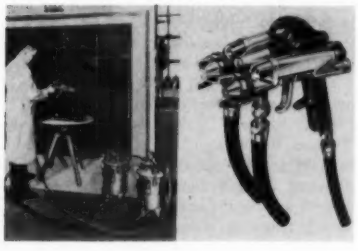


IMPROVED WELDING LENS LIFT-FRONT RETAINER

(Use Key # 510 on Inquiry Card on page 1)

A LIFT-FRONT plate retainer molded of durable nylon plastic has been developed for its premier line of welding helmets by Sellstrom Mfg. Co. The manufacturer states that in addition to stronger construction the new "Model S" retainer features greater infra-red resistance and will hold more plates (welding, safety, magnifier and cover glass) than others on the market without sacrificing its compact design.

In addition to its large plate capacity, the new retainer features firm plate retention with a completely new spring system. Plate changing is said to be simple; the retaining spring is readily accessible and snaps out as desired. The lift part uses coil springs to maintain a firm open position, closing positively to insure against light leaks. By adjusting two screws, plate retainer can be interchanged. The lift front retainer is being supplied on all of the company's curved front fibre and fibre glass welding helmets and older model helmets can be easily adapted.



POLYESTER RESIN SPRAYER

(Use Key # 511 on Inquiry Card on page 1)

A TWO-HEADED spray gun for efficient performance at low cost has been developed by Binks Manufacturing Co. Designed primarily for the application of polyester resins where the accelerator mixture must be brought into contact with the catalyst mixture immediately before the mixture impacts the work surface, the gun can also be put to other uses. An example is in spattering or veiling where two different materials can be sprayed with each pass of the gun. The gun can be used for almost any two-component finishing system where perfect mixing is not required, or where pre-mixing is impossible or impractical. Designated the Model 181, the unit uses standard Binks Model 18 gun nozzles, and is available with air and material nozzle sizes to suit individual requirements. Some applications may necessitate the use of two different size nozzles, depending on the viscosity of the material being sprayed and the ratio of material quantity.

Gun body is of drop forged aluminum. Gun heads are ordinarily of drop forged bronze, but stainless steel heads are available. Needle stroke is controlled at the gun handle, as with standard guns, and spray patterns of each gun may be regulated from round to fan, with any intermediate configuration. Three hoses, two for material and one for air, are used with the gun. Normally, two pressure tanks are used to supply equal pressure to each head, but different pressures can be used.

NON-SLIP FLOOR POLISH

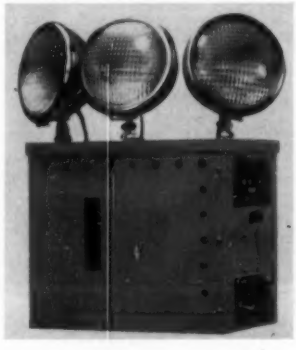
(Use Key # 512 on Inquiry Card on page 1)

A LIGHT-COLORED floor polish designed for floor safety, protection and appearance, has been developed by the Fuller Brush Co. It contains synthetic resins and plasticizers dispersed in water, and creates a much "slower floor" that is more scuff resistant and brilliant than ordinary synthetic floor polishes. The company claims that Fullstop retains its slip resistance without any noticeable loss of gloss, and affords greater traction for a longer period of time, than many other resin polishes. The polish is also reported to have good leveling properties, no appreciable color change, and be as easy to strip as any ordinary wax. Suitable for use on properly sealed wood floors as well as on asphalt, vinyl, linoleum, rubber and other commonly used interior floors. It has the approval of Underwriters' Laboratories and The Rubber Manufacturers Association.

AUTOMATIC EMERGENCY LIGHTS

(Use Key # 513 on Inquiry Card on page 1)

A NEW low-cost emergency lighting system, "Yorklite," has been announced by York Lighting Inc. Each unit will handle four 25-watt sealed-beam floodlights. The lights turn on instantly and automatically whenever the power supply goes off. A sensing device "realizes" the power is off and turns on the emergency lighting instantly without human attention. When the power supply returns, the lights automatically turn off and the unit begins recharging. Lamps are fully adjustable in any direction. One lamp is mounted in each unit and one to three of the other lamps may be installed remotely or on the unit itself. The self-contained unit, including battery, charging circuit and selenium rectifier, measures only 12½ by 8 by 11¼ inches and weighs 60 pounds. It can be mounted on the wall, suspended from the ceiling or placed upon the floor. Cabinet has baked-on enamel finish of silver Hammertone gray over phosphatized steel—16 gauge. The unit has Underwriters' Laboratories approval. The Yorklite requires only pennies per month to keep itself charged and ready for any emergency, and is designed and built to withstand years of constant trickle charges. Insulation is provided by rubber separators and glass mat retainers, sealed to prevent leakage of electrolyte. Charging is done by means of a dependable and economical bridge circuit instead of the ordinary "centertop." The compact Petti-Sel selenium rectifier gives full-wave rectification. The unit is fully protected with an insulated transformer that has two separate windings, and is said to be shortcircuit-proof; it is designed for hook-up with a 115-volt circuit. Units to operate at other voltages and current frequencies are available.



DISPOSABLE BATH TOWELS

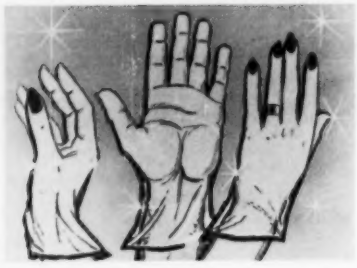
(Use Key # 514 on Inquiry Card on page 1)

A DISPOSABLE, one-time use cotton bath towel is offered by B. H. Jordan Co., at a price below the cost of laundering the traditional bath towel. This towel is produced of highly absorbent cotton bonded by a new binder which overcomes the high cost of weaving and imparts great strength.

RADIATION ELECTROMETER

(Use Key # 515 on Inquiry Card on page 1)

NEW APPARATUS for radiation measurement is being manufactured by the Landsverk Electrometer Co. The L-75D analysis unit consists of an ionization chamber and quartz fiber electrometer powered by a self-contained transistorized power supply. Also available, in kit form, is model L-75K, which includes light source, sample holders, filters, planchets, for measurement of radioactivity. Applications include laboratory analysis, fallout measurements, air, food and water contamination checks, radioisotopes comparison, tracer studies, etc.



DISPOSABLE GLOVES

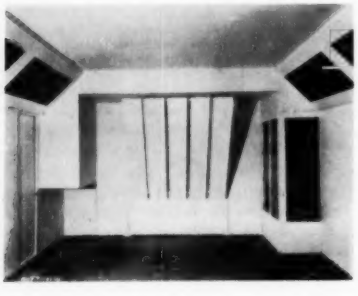
(Use Key # 516 on Inquiry Card on page 1)

DISPOSABLE low-cost, polyethylene gloves with a variety of applications are being produced by the Olympic Glove Co. The gloves are strong, air-tight and water-tight, and their skin-thin quality allows the texture of whatever is handled to be felt through the material. The "Oly/Poly" glove is made of a special grade polyethylene which permits pulling on and off repeatedly with little stickiness. Depending on the job, it may be used as an overglove, or on the bare hand in many areas in which abrasion is not a factor, but complete protection is required. Applications range from lint-free inspection of fine parts to dirty and greasy industrial jobs, certain chemical operations, painting, and plant visitors, etc.

DRY TYPE SPRAY BOOTHS

(Use Key # 517 on Inquiry Card on page 1)

A NEW LINE of dry type spray booths, offered as standard equipment, has been introduced by Binks Mfg. Co. The line includes filter floor type spray booths, baffle floor type booths, filter bench booths and baffle bench booths. Also available are an auto spray booth, a truck spray booth and a combination auto and truck spray booth. All booths are built of 18 gauge sheet steel sectional panels and are designed for easy erection at the job site. Panel section flanges are located on the outside of the booth leaving the inside smooth (for ease of cleaning); and are easily bolted together during erection. Floor and bench type booths range in size from 3.5 feet wide to 20 feet wide, auto and truck booths range in size from 14′ high × 9′ wide × 23′ deep to 16 × 16 × 43. All of the booths can be equipped with paint arrestor filters. In addition to removing paint overspray solids from the exhausted air, these filters also equalize air flow and provide uniform air movement throughout the entire booth.



POCKET-SIZE FALLOUT DETECTOR

(Use Key # 518 on Inquiry Card on page 1)

A SELF-CONTAINED, low-cost radioactive fallout detector and alarm, designed to give personnel protection in the event of nuclear attack, has been developed by Controls for Radiation, Inc.

The new device is called Fido (Fallout Intensity Detector Oscillator). The unit, including batteries, is smaller than a cigarette package. It emits an audible signal that increases in intensity as radiation increases above 0.2 roentgens per hour. This level is below the minimum required for civil defense use and within a safe exposure range for a limited period. The instrument is also available with a meter in place of the sound signal to give a visual indication of radiation dose rate. The fully-transistorized electronic unit incorporates a solid state sensing element which responds to all forms of nuclear radiation at dose rates up to 5000 roentgens per hour. Batteries for Fido are mercury cells with an operating life in excess of 300 hours and an indefinite storage life, but for civil defense use, flashlight or penlight batteries may be substituted. The unit has a peacetime application in the atomic energy field.

VENTILATED FACE SHIELD

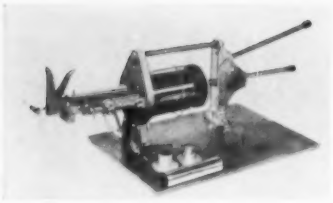
(Use Key # 519 on Inquiry Card on page 1)

A NEW safety face shield that combines vision with ventilation has been developed by American Optical Co. Designed for use by industrial workers who require both visibility and face protection while working in heated areas, the Kool-Vent shield incorporates an optically correct acetate window in a fine metal 24 mesh screen, 8″ × 11½″. The shield is held securely before the face by means of an adjustable fibre headband, enabling it to be worn with or without regular prescription eyeglasses. Acetate windows are available in clear, green or aluminized.

CAULKING GUN LOADER

(Use Key # 520 on Inquiry Card on page 1)

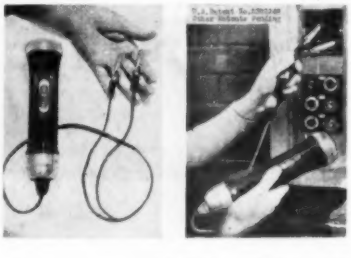
TWO-PART activated thiokol materials, in one-gallon cans, may be quickly loaded into regular-type caulking guns and all cartridges with a new Force-Flo Midget Loader, manufactured by Force-Flo, Inc. The loader also dispenses other materials into caulking guns, such as: caulking and glazing compounds, roofing cement, mastics, sealants, putties, adhesives. The portable unit, weighing 44 lbs., is easily carried from place to place. By eliminating material waste, the loader saves 30% in material. Standard caulking guns may be loaded in less than a minute, reducing caulking gun loader time 75% over conventional loading methods, the company reports. A piston on the Force-Flo is actuated by a pump lever to exert pressure on the material contained in a standard one-gallon can attached to the base of the loader. Ample pressure is attained in one or two strokes of the pump lever to force the material into a standard caulking gun that has been placed in the gun-loading cradle of the midget loader. The piston of the loader has a flexible neoprene seal that cleanly wipes the sides of the container as it travels through the can of material. This feature ends waste and assures the complete use of all of the material within a container. To facilitate the mixing and handling of two-part activated thiokol materials, the device is equipped with a mixing mount that securely holds a standard one-gallon bucket of material for the mixing operation.

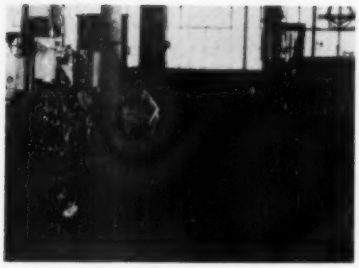


FLASHLIGHT & CIRCUIT TESTER

(Use Key # 521 on Inquiry Card on page 1)

A FLASHLIGHT which is also a tester for checking various electrical circuits in the home, shop, garage, in TV sets, radios, appliances, small motors, electronics, etc., is available from the A. V. Olson Mfg. Co. It resembles a standard cylindrical flashlight and uses two standard batteries, but it differs in the tail end which houses a compact circuit testing unit and a plug-in receptacle with paired cord and clips. Without the cord it can be used like any flashlight. For circuit testing, the cord is plugged in and then the clips are connected into the circuit to be tested. If its light flashes on, the circuit is all right; if its light does not come on, it means that the circuit is broken or deficient in some way. In the home it is useful for checking electric fuses, appliance cords, low voltage lamps, appliances, motors, Xmas tree cords and lamps, loose connections, etc. It may also be utilized by the auto mechanic for checking timing, wiring, switches, battery and generator connections, etc., and by servicemen in the electrical trades.

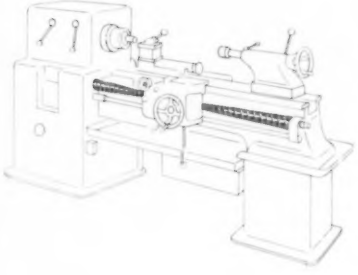




CHEMICAL RESISTANT RESURFACER

(Use Key # 522 on Inquiry Card on page 1)

P-D-Q FLOOR, a quick drying patching compound which combines the best elements of epoxy resin with other corrosion resistant ingredients to provide an extremely strong and long wearing surface that protects against all acids, alkalis, and oils, and may be used indoors or outdoors, has been introduced by Maintenance Engineering Co. The compound bonds securely to concrete, brick, stone, wood, steel or even glass block and is ready for light traffic in 4 to 6 hours, and for heavy trucking after drying overnight. It will not chip or crack even under the pressure of steel wheels carrying heavy loads, and may be given a permanent non-slip finish where wet floors or metal surfaces present a constant accident hazard. P-D-Q is easy to apply even for unskilled labor. It requires no heat or preparatory bonding applications, and may be applied directly to any clean dry surface. The product is also said to aid in preventing the formation of germ producing bacteria, mold and mildew.



METAL DUST COVERS

(Use Key # 523 on Inquiry Card on page 1)

METAL FORMED Dust Covers for protecting shop equipment and manufactured products, where precision and lubrication must be guarded, are available from the Central Safety Equipment Co. Offered in a wide range of sizes down to ½" diameter, these dust covers snap over lead screws, hydraulic shafts, rams, etc. Manufactured of helically wound flat ribbon steel, they guard against dirt, grime, chips and welding spatter. Covers permit movement in all directions from within and are self aligning and self cleaning. They are also available in chrome, copper, and stainless steel.

CLEAR VIEW MASK

(Use Key # 524 on Inquiry Card on page 1)

A NEW FACEPIECE for gas masks, hose masks, air line respirators, and demand breathing apparatus has been developed by Mine Safety Appliances Co. The Clearvue facepiece, featuring a large single lens, is designed to eliminate fogging of the lens, and has an improved speaking diaphragm and built-in accommodation for prescription glasses. It will be incorporated in most of the M-S-A breathing apparatus. The wrap-around lens assembly can be replaced quickly in the field. Formed wire fasteners can be removed and re-used for installation of the new lens. Uniform tension of the fasteners maintains seal around the lens periphery, and prevents loosening or shifting. Inspired air is directed over the lens surface by a ducting arrangement, and moist

exhaled air is diverted by means of a system of baffles to prevent lens fogging. The Clearvue unit provides full accommodation for prescription glasses. An optional kit is available for precise fitting of prescription glasses with normal lens size. Exact positioning of temples within the facepiece maintains seal and prevents possible leakage. For compactness, the exhalation valve is integrated with the housing of the diaphragm. The strong mylar diaphragm can be easily replaced.

NEW WARNING BELLS

(Use Key # 525 on Inquiry Card on page 1)

A NEW LINE of bells for fire protection and industrial use, has been announced by Notifier Corp. The N-Co-Bell features

an amperage drain requiring about half the current of other bells listed by Underwriters' Laboratories, but with a high decibel rating, the company reports. A controlled stroke permits the plunger to strike only a fraction as often as older type bells, thus utilizing full vibration output of the gong shell. Parts are interchangeable and bell size may be easily changed after installation by replacement of one shell with another. Bell housing is of sturdy die cast construction, and all parts of the mechanism are plated to prevent deterioration. Coils are wound on heavy insulation and insulated around the periphery to prevent damage or shorting. Live parts are securely held in place or insulated for maximum safety. Of underdome design, the N-Co-Bells are available with 6, 8, 10 or 12 inch gong shells, and are manufactured in all standard voltages, both A.C. and D.C.

IMPROVED ICE REMOVER

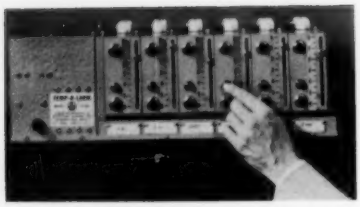
(Use Key # 526 on Inquiry Card on page 1)

A NEW ingredient, Thermolyte, has been added to the Walton-March chemical, Ice-Foe, to initiate ice-melting action at even the lowest temperatures. Accidents due to ice and snow can be virtually eliminated by spreading the chemical particles on sidewalks, stairs, driveways, loading docks, platforms and other areas where walking may be perilous. Ice-Foe, which creates heat on contact with moisture, is reported to have a melting capacity up to 30 times greater than salt, is completely soluble, and leaves no residue on sidewalks or driveways. The non-toxic compound is safe in areas where people or animals move freely, won't harm grass or other vegetation, and cannot damage shoes, concrete or asphalt, the company reports.

HAND LOTION FOR SOLVENT USERS

(Use Key # 527 on Inquiry Card on page 1)

A NEW formulation to keep hands smooth, and prevent chapping and cracking after frequent washings, has been announced by the Fisher Scientific Co. The company reports that Gramercy Skin Lotion, a non-greasy skin protector, is effective for chemists, who work with acetone, methanol, ether, glassware detergents, etc., and for clinicians, who use alcohol, xylene, chloroform, benzene, and strong caustics. The lotion container comes equipped with a pump-dispenser for convenient application near the lab sink.



FREEZER ALARM

(Use Key # 528 on Inquiry Card on page 1)

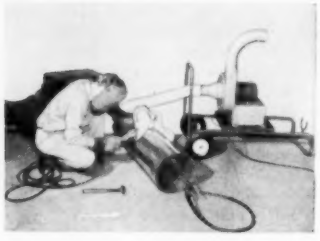
A NEW DEVICE which triggers an alarm when temperatures in frozen food cabinets reach a thaw level, has been announced by Kidde Ultrasonic & Detection Alarms, Inc. Called Temp-O-Larm, the equipment comprises a thermostat pre-set to actuate at any desired temperature. When the temperature in a freezer or chill box reaches the pre-set temperature, it sends a signal to an annunciator which causes audible and/or visible alarms to sound either locally, at a central alarm station, or both. Each protected freezer or chill box annunciator has an alarm time delay that can be set from zero to six hours. This eliminates the possibility of alarms being triggered during expected and normal thaw temperatures experienced as a result of loading or defrosting. Only when the danger temperature has been experienced for a period longer than the setting on the time delay does the apparatus sound a warning.

Available is one annunciator drive unit that will monitor from one to six chill or freeze cabinets, and another unit that will monitor seven to twelve. While this equipment usually will be used to detect thaw temperatures, it can be used to warn of freeze temperatures in fresh fruit areas, or to sound an alarm at any temperature for which a closed circuit thermostat is available.

AUTOMATIC EMERGENCY LIGHT

(Use Key # 529 on Inquiry Card on page 1)

A NEW COMBINATION automatic emergency light and portable carrying handlamp which plugs into any standard 115 volt AC outlet and furnishes emergency lighting instantly and automatically whenever the regular source of power fails. The unit, available from the Electric Cord Co., also contains a convenient carrying handle and finger tip on and off switch for use as a conventional handlamp. It is designed for use with standard 7½ volt dry batteries. The adjustable flood type head will furnish approximately three hours of emergency lighting.



PORTABLE WELDING EXHAUST SYSTEM

(Use Key # 530 on Inquiry Card on page 1)

A NEW PORTABLE exhaust system for the removal of fumes from welding, soldering, etc., from garages and work shops has been announced by Car-Mon Products Inc. The unit is mounted on a sturdy, rubber wheeled truck, and rolls easily to the source of work. It contains all the features of the company's stationary fume removal shop exhaust system. Receptor exhaust inlet with magnet-base holds fast to the piece being worked on, or on any convenient metal nearby. Powerful suction from the fan system draws up all poisonous gases, fumes, smoke and heat, and directs them away from the worker. The resulting clean air atmosphere helps to reduce fatigue and overheating. Receptor intake and flexible weld-proof tubing dismantle easily and are stored on the truck. The unit occupies a floor area of 25" x 31" and is 47" high.

PAINT BRUSH DIP PREVENTS DRYING

(Use Key # 531 on Inquiry Card on page 1)

DESIGNED TO eliminate the need of cleaning paint brushes, Stat, a gelled liquid, chemically "lubricates" fresh paint to prevent it from drying on brushes. One dip of a brush into a can of the solution keeps paint from hardening on the bristles, its manufacturer states, and preserves the natural softness of the brush between uses without cleaning. Weeks or even months later, the Stat can be brushed out on a piece of newspaper leaving bristles clean, soft and ready for use. The preparation, a product of the Winfield Brooks Co., can be used with varnishes, lacquers and shellacs, as well as with all popular enamels and paints. It is based on a chemical developed by Monsanto Chemical Co. Unlike ordinary paint solvents, it has been proved to be completely safe to use near children and keep in the home. It is a nonflammable product, has no dangerous vapors and is completely safe to the skin. In fact, it has a softening effect upon skin tissue like that of cold cream, reports its manufacturer, and is recommended for removing paint from skin and hair. It is estimated that painters save 15 to 20 minutes per project by cutting brush-cleaning time.

GERMICIDAL FLOOR WAX

(Use Key # 532 on Inquiry Card on page 1)

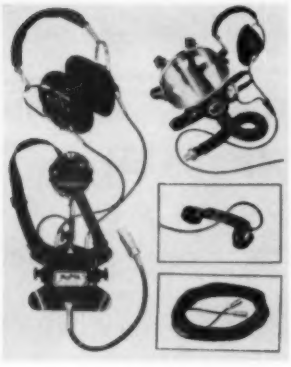
DEMON, a bacteriostatic liquid floor wax that kills germs on contact, prevents the growth of many kinds of bacteria and retains its self sanitizing ability for as long as the wax is on the floor, has been developed by the Penetone Co. The wax, which includes a derivative of Bithionol (a thiobis di-chlorophenol), is non-toxic, non-skid, and has a high gloss.

The company reports that findings of independent testing laboratories demonstrate that DEMON wax possesses the ability to reduce continuously by 91 to 98.1% the number of bacteria on floor surfaces and so eliminate the basic source of Staphylococcus infections in hospitals, institutions and public buildings. Safe to use on all types of flooring materials including asphalt, rubber and vinyl tile, as well as linoleum and terrazzo. It is easy to apply and dries in 20 minutes.

ELECTRICAL EQUIPMENT DAMP PROOFER

(Use Key # 533 on Inquiry Card on page 1)

THE HARMFUL EFFECTS of moisture in electrical equipment may be eliminated by the application of CRC Moisture Inhibitor, a chemical liquid which drives out absorbed moisture and keeps it out. The product, introduced by Corrosion Reaction Consultants, Inc., eliminates the effect of wicking, reduces electrical failures, and restores electrical characteristics, which deteriorate in moist and humid atmospheres. Equipment that has been totally submerged can be returned to operating condition. Although CRC is non-conducting, it does not interfere with conductivity of contacts or commutators. It also prevents corrosion of ferrous and non-ferrous metals with a long lasting, continuous, molecular film that completely blankets the surface. Because of its extremely low surface tension, the inhibitor penetrates deeply into every crack and irregularity to seal out air and vapor, thus preventing corrosive agents from getting to the metal surface. It also facilitates cleaning rust, scale and dirt. The company reports that the coating may be effectively used on motors, controls, switches, solenoids, relays, transformers, terminal blocks, welding equipment, electronic circuits and gear, and will generally provide protection for at least a year; it is safe to use and is non-toxic to humans.



COMMUNICATION SYSTEM FOR RESPIRATORY APPARATUS

(Use Key # 534 on Inquiry Card on page 1)

VOICE-POWERED communication equipment for use with Scott Air Paks has been announced by the Boma Corp. The 3-D Sound Powered System consists of a microphone permanently installed in the face piece of the breathing apparatus. Designed with a single head set, it permits communication with the "outside," and also the reception of nearby sounds. Power is supplied by the user's voice, and the absence of batteries or outside connections enables operation in highly explosive atmospheres. The equipment is especially suitable for underground applications where contact with men working in danger areas is highly important, but where radio may be shielded out, or constitute an electrical hazard.

VERSATILE DISINFECTANT

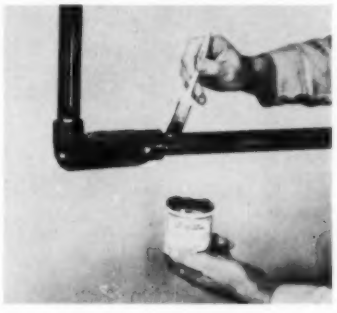
(Use Key # 535 on Inquiry Card on page 1)

A CONCENTRATE that is four-fold in purpose, Phenol coefficient 100, a product of the Albert W. Pendergast Safety Equipment Co., is a sterilizer, cleaner, deodorizer and disinfectant, with a range of uses in industrial plants, schools, hospitals, hotels, etc. Applications include cleaning and sterilizing goggles, respirators, masks, shields, shoes, gloves, aprons and other personal equipment; toilets, wash basins, shower and washrooms, dispensaries, general mopping and cleaning; cleaning and sanitizing dishes, glassware, utensils, sick room supplies, etc. The concentrate, an ounce of which makes a gallon of solution, is non-flammable, non-solvent and non-toxic.

CORROSION-RESISTANT COATING

(Use Key # 536 on Inquiry Card on page 1)

ACIDS, ALKALIES, greases, and oils will not affect Plast-A-Coated Condulets, anti-corrosive coatings produced by Crouse-Hinds. When properly installed with one of the plastic or plastic-coated conduits, they will last several times longer than standard materials in most corrosive areas, the company reports. The product is a black plastic coating; a tough, corrosion-resistant material which adheres to the condulet surface and has good resistance

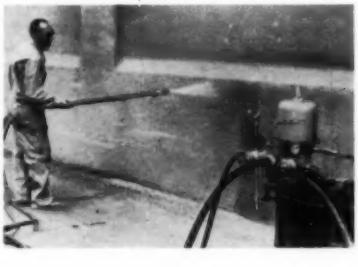


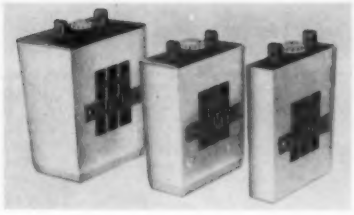
to abrasion. Coated products of this kind can be installed without losing the protection of ground continuity or impairing the safety of explosion-proof apparatus. Plast-A-Coat touch-up compound is available to cover exposed areas in threads and cover joints. By using this compound on cover joints and hub joints, the installation can be sealed against the corrosive agent.

SPRAYED ALUMINUM VAPOR BARRIER

(Use Key # 537 on Inquiry Card on page 1)

A NEW LIQUID metallic siding in a range of colors that both waterproofs and insulates in one coat, is announced by Pace Products, Inc. Called Aluma-Chron, this product combines the durability and insulation of aluminum, and the appearance of a conventional, decorative outside paint. It provides a vapor-proof barrier, impervious to moisture. The product contains pure aluminum flakes that reflect the sun's rays to substantially reduce summer building temperature, and, in winter, act inversely to keep heat inside the building. Suitable for cement and cinder block constructions, and asbestos cement siding; and also for quonset buildings, metal cribs and tanks—where it also rustproofs.





MODULAR STORAGE BATTERY

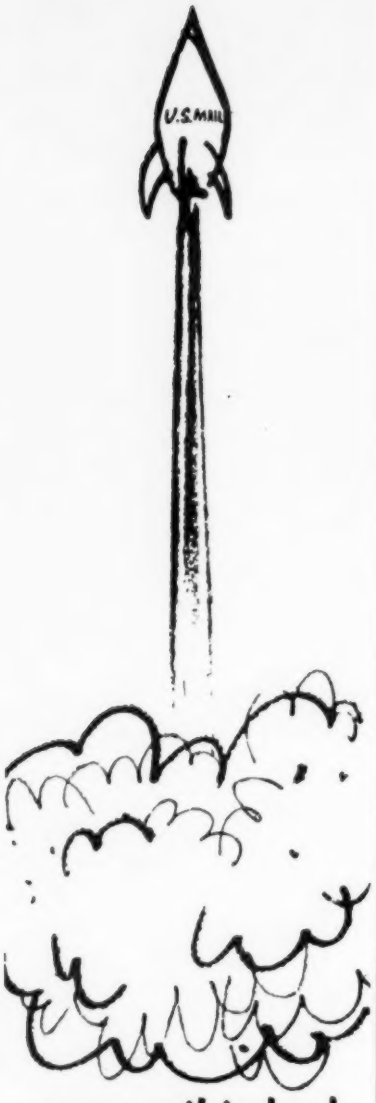
(Use Key # 538 on Inquiry Card on page 1)

THREE STANDARDIZED basic cells, with ampere hour capacities of 220, 125 and 75, are offered by Scranton Cellomatic Battery Corp. to simplify industrial storage battery purchasing, maintenance and inventory operations. Additional standardized cells of very high and very low amperages will be available. Standardized shock-resistant cell base frames, designed to dovetail on all sides with other similar frames, permit an infinite number of cell arrangements to meet practically any voltage, amperage, weight or configuration requirement. Standardized cell post connectors facilitate electrical arrangements and re-arrangements. Selenium is used in the manufacture of the cell plates to lower internal resistance, and vibration-resistant construction is employed throughout to eliminate active plate materials "shedding" and increase full-efficiency battery life. Cell casings are injection molded polystyrene, to provide protection against acid seepage and temperature extremes.

IMPROVED FLOOR MACHINE

(Use Key # 539 on Inquiry Card on page 1)

ADDITIONS and improvements to the Pacemaker series of floor machines have been announced by the Advance Floor Machine Co. These include the foot operated Kwik-Lok handle adjustment, which enables the operator to quickly and easily vary handle positions from 90 to 180 degrees. A non-marking rubber bumper has been added to the top of the Pacemaker's motor, in addition to the one previously featured at its base. Driving lugs of ductile iron have replaced the conventional aluminum lugs. New Zolotone plastic paint affords increased durability and improved appearance. The machines are offered in 15, 17, 20 and 24 inch brush sizes, with motor ratings of ½ to 1 horsepower.



zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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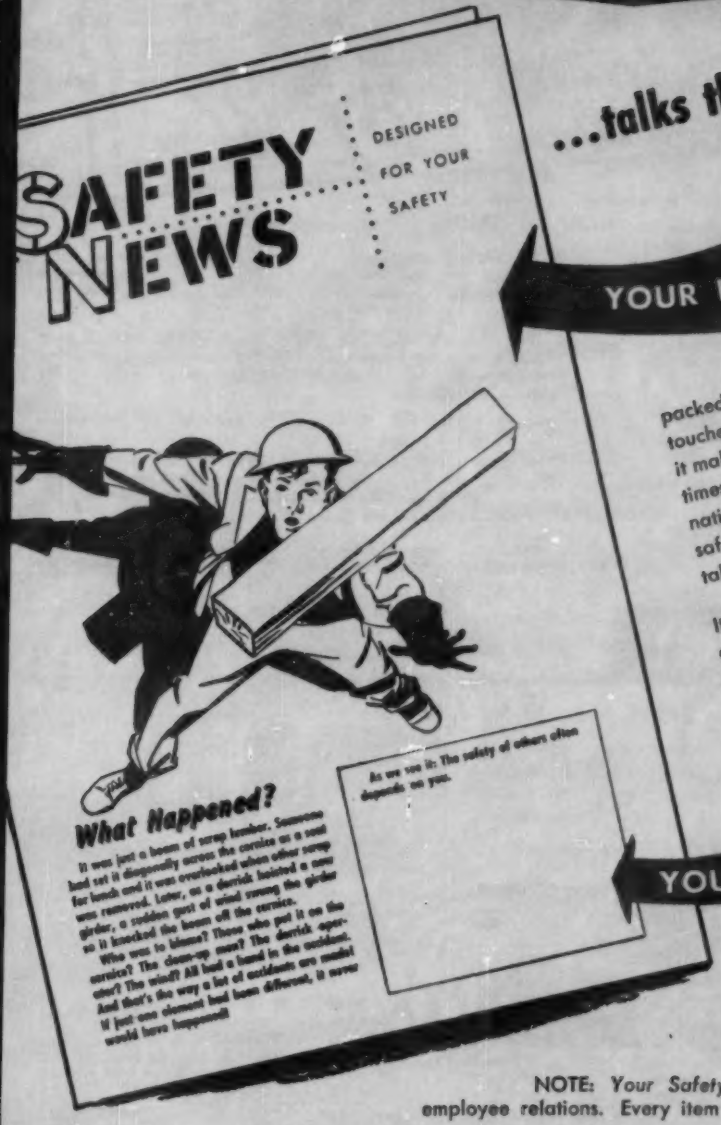
- Each worker clearly sees how safety benefits him . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . every month!



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It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

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INSIDE PAGES
(Pages 2 and 3)

THoughtlessness is a THief
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
Playfulness is a Pirate
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and shoving-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's colorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning. First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe.
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
Safety Laziness is a Simon Legree
If you are lazy about safety rules, those accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
Hazardous Methods are a Hold-up Man
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but ability only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

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